

THE SOUND-SYMBOLIC SYSTEM
OF
JAPANESE

By
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The sound-symbolic system of Japanese, commonly called giongo/giseego/gitaigo 'mimetic words,' is one aspect least understood about Japanese in spite of its systematic nature and significance in daily communication. Very little systematic research has been done on it, and textbooks for non-native speakers include only the least sound-symbolic few of the system which could be readily checked in conventional dictionaries. In attempting to remedy the situation, this dissertation demonstrates that Japanese mimetic words indeed constitute a sound-symbolic system which has implications not only to the study of sound symbolism in general but also to the historical sound change of Japanese.

The dissertation first deals with the formal characteristics of the sound-symbolic system. The syntactical, morphological, and phonotactic properties are described. The accentual properties of the system are next described, leading to the characterization of the system as a continuum between the more iconic and the less iconic.

The sound symbolism of both monosyllabic and bisyllabic mimetic adverbs is treated. Concrete evidence is presented to demonstrate that there indeed are systematic ties between

the semantic and phonological components of these mimetic words. For instance, the semantics of the voiceless bilabial stop in monosyllabic mimetic adverbs is broken down to 'abrupt movement, stretched-out surface or line, light/small/fine' corresponding to its phonological features of 'explosive, bilabial, voiceless.' Functional differences between positions are also clarified. The first consonant, for instance, is demonstrated to denote 'texture,' while the second denotes 'movement.'

The dissertation furthermore demonstrates two aspects of the mimetic phonology which are related to the historical sound change of Japanese, namely palatalization and bilabial stops in the second syllable. Based upon the distributional characteristics of palatalized syllables, it is concluded that palatalization in the sound-symbolic system has an origin different from that of palatalization in Sino-Japanese loan words. Also, based upon the distributional and semantic characteristics of bilabial stops, it is suggested that the voiced bilabial stop in the second syllable, or in intervocalic position, in mimetic words derives from the voiceless bilabial stop.

CHAPTER 1 INTRODUCTION

1.1. Statement of the Problem

Japanese has an extensive set of lexical items commonly called giongo/giseego/gitaigo "mimetic words." The majority of these words are never entered into ordinary Japanese dictionaries or textbooks or grammars, and, for the limited few that are entered, only their least mimetic meanings are given. Hence, the more expressive of these mimetic words escape the acquaintance of beginning students of Japanese. For native speakers of Japanese, on the other hand, their expressive meanings are immediately understood, and most of the mimetic forms are easily identifiable as such because of their distinct form.

Phonologically speaking, a large number of mimetic words in Standard Japanese have the shape of $C_1V_1C_2V_2$ - $C_1V_1C_2V_2$ or C_1V_1N - C_1V_1N (where N stands for a long nasal). Semantically speaking, many of them indicate manners of action, psychological conditions, and sounds accompanying certain actions; their sounds are perceived as imitative of or implying some physical properties. In other words, they are sound-symbolic. Syntactically speaking, most of them function as adverbs; some of them are used as modifiers in noun-phrases.

The extensiveness of the mimetic system is related to the semantic underdifferentiation of Japanese verbs. Sato (1977) notes that Japanese has a very small number of verbal and nominal roots in comparison to other languages. Hirose (1981) contrasts, for example, how the semantic domain of "walking" is treated in Japanese and English. This will serve to illustrate the point.

In order to specify the manner of "walking" in English, the most common method is to use different verbs other than the core verb "walk." These include "waddle, toddle, totter, wobble, stagger, reel, stride, strut, swagger, lumber, stomp, tramp, trudge, plot, wander, ramble, stroll, amble, saunter, hike, and shuffle." The use of these various verbs adds to the expressiveness and explicitness of the utterances that contain them.

In order to achieve a similar effect in Japanese, one uses various mimetic words with the verb aruku "walk." Hirose includes about seventy such mimetic words in his discussion. A few of them are listed below.

(1-1)	dosa-dosa (to) aruku	'walk with loud noise'
	doka-doka (to) aruku	'individuals walk noisily and violently'
	kotu-kotu (to) aruku	'walk with the shoes making the characteristic noise'
	saku-saku (to) aruku	'walk in something like soft snow'
	yoro-yoro (to) aruku	'wobble'
	bura-bura (to) aruku	'stroll'
	teku-teku (to) aruku	'hike'
	dara-dara (to) aruku	'walk slowly due to lack of enthusiasm'
	noro-noro (to) aruku	'walk slowly'
	zoro-zoro (to) aruku	'mass of people walk'
	uro-uro (to) aruku	'loiter, roam'

It is important to point out that these mimetic words are not idiosyncratically produced expressions. While there are a few short-lived expressions coined by individuals or ingenious expressions used by poets in their poems, the majority of the mimetic words conform to rigid structural constraints. In the above examples, for instance, a morpheme of the shape $(C_1)V_1C_2V_2$ is reduplicated before it is preposed to the verb. For mimetic

expressions of this type, a particle of quotation, to/te, may be inserted between the mimetic word and the verb. When a partially reduplicated mimetic word of the type $C_1V_1Q-C_1V_1$ is used, to must appear, as below.

- | | | |
|-------|-----------------|-----------------|
| (1-2) | saQ-sa to aruku | 'walk speedily' |
| | paQ-pa to aruku | 'walk speedily' |

In spite of the systematic nature and the significance of the Japanese mimetic system, it is one aspect little understood about Japanese on both sides of the Pacific. Very little systematic research has been done on it, and textbooks for non-native speakers include only the least sound-symbolic, most idiomatic items in the system, which could readily be found in conventional dictionaries. Recent concern about the difficulty of learning mimetic words by non-native speakers of Japanese has produced a dictionary of giongo/gitaigo (Asano 1978), which deals exclusively with mimetic words. This dictionary contains about 1450 entries and explains their meanings in relation to their use in specific contexts. Significant as this dictionary may be, it has touched upon only the tip of the problem; it has not identified the sound-symbolic meanings of the basic phonological units; nor has it clarified the systematic nature of Japanese mimetic words as a linguistic structure which is precisely what allows native speakers to take them for granted. The present dissertation attempts to fill this gap in the study of Japanese grammar.

It is hoped that the rigorous method applied in this study of the Japanese mimetic system will persuade even the most skeptical that there is sound-symbolism in natural languages. In what follows, I will briefly describe the circumstances that led to this general skepticism about sound symbolism in natural languages.

First of all, it will be recalled that a society of linguists in Europe in the 19th century banned the discussion of the evolution of language by professional linguists, because the unscientific and simplistic evolutionism in discussions of language evolution rampant at that time was considered to be harmful to the healthy growth of scientific linguistic

disciplines. Representative of this simplistic evolutionism were the "bow-wow theory," the "ding-dong theory," and the like, which traced the origin of language to imitative or sound-symbolic use of sounds. So simplistically were these "theories" constructed that iconic properties of language generally seem to have been considered as unworthy of serious scientific endeavor. Any introductory textbook in descriptive linguistics will verify this. Furthermore, arbitrariness is the hallmark of the most human of the human communicative systems -- language -- both within the general vocabulary and within the grammatical system (cf. Hockett 1960; Hockett and Ascher 1964).

The second cause of the scepticism about sound symbolism has much to do with the data base with which linguists have been working. In European languages, where modern linguistics first developed, sound symbolism plays only a negligible role within the linguistic systems themselves. The expressive role of sounds is largely latent and comes into focus only when there is a choice between homonymic arbitrary symbols (Markel 1966). Brown (1958) is more pessimistic about the role of sound symbolism in natural languages. See the following passage from Brown (1958).

The failure to detect any effects of phonetic symbolism in situations where it is not specifically called for by the experimenter [by the use of nonsense words] suggests that we do not usually expect speech to represent or imitate. (138)

To be sure, a number of linguists have pointed out interesting correlations between certain English sounds and meanings (Householder 1946, Bolinger 1950, Marchand 1959, Wescott 1971a; 1971b). The problem here, however, is that the data base of these studies is not well-defined: the described correlations come from diverse subcategories of the language, and, within the selected lexical sets, there is little more in common other than the posited sound-symbolic correlation that would tie them together as a meaningful subset; counterexamples, on the other hand, are grossly ignored. Hence, there always remains a criticism that the data were selectively skewed in favor of sound symbolism.

Recent researchers of sound symbolism in both European and non-Indo-European languages are more aware of this problem of skewing of data and attempt to define the data base more explicitly, but the problem remains because formal criteria that would exclusively select sound-symbolic forms do not exist in these languages, either (Joseph 1985, Nichols 1985). Likewise, although studies of African languages brought the study of sound symbolism to the attention of modern linguists (Samarin 1970b), and there were attempts to tie formal classes to sound symbolic forms, these attempts failed (Courtenay 1976).

The third factor concerns the elusive nature of sound-symbolic meanings; that is, elusive from the point of view of the outsiders (Samarin 1967, 1970a). Accurate translation is always extremely difficult to achieve, but the semantics of expressive speech above all seems to be the most difficult to translate into another language, defying either concise approximation or full explanation even when the native speakers know exactly how to use and interpret the respective forms. This is why, although some East Asian languages such as Korean and Japanese are reported to possess very systematic sound symbolism, the systems have not been treated fully by outside linguists.

The situation was unfortunate for the study of the Japanese sound-symbolic system. Japanese and Japanese speakers were used in a number of experiments to represent "exotic" languages and speakers, when the discussion of sound symbolism reached a peak in the 1960s. See Maltzman, Morrisett and Brooks (1956), Blackbill and Little (1957), and Taylor and Taylor (1962). However, no one mentioned giongo/giseego/ gitaigo, even when it was stated, as in Taylor and Taylor (1962), that sound symbolism is culture/language-specific. The omission does not seem to have been the fault of the psychologists alone. Ultan (1978) uses grammars of natural languages including that of Japanese for cross-linguistic comparison of size-sound symbolism, but he does not find any evidence of size-sound symbolism in the Japanese grammar. In Chapters 4 and 5, it

will be demonstrated that the vowels are sound-symbolic of size and shape in the Japanese mimetic system.

1.2. Delineation of the Corpus

Traditionally, Japanese sound symbolism has been defined semantically, two major subcategories being words imitative of sounds and words imitative of modes respectively. Such semantic definitions, however, are not rigorous enough to enable us to delineate the mimetic system at the beginning of the research.

On the other hand, an attempt to define Japanese mimetic words solely in terms of forms/grammatical functions/ distributions proves to be futile, because their formal characteristics cross over the boundary into the regular stratum of Japanese. For instance, although reduplication is a salient property of mimetic words, not all mimetic morphemes can be reduplicated. Nor is reduplication limited to mimetic words; a kind of plural or distributive derivation is accomplished by reduplication (Martin 1952). The infixation of intensifier /Q/ or /N/ and the suffixation of /-ri/ and /-N/ spread over more than the domain of mimetic words.

Historically speaking, mimetic words have not been entirely distinct from the rest of the grammar. Some words that are now considered as sound-symbolic by some people were originally non-sound-symbolic. For instance, according to Otsubo (1982), simi-zimi 'keenly, heartily' derived from the verb simu 'to soak into,' and noNbiri 'leisurely' derived from the verb nobu 'to stretch.' Conversely, some words which are commonly considered as part of the ordinary stratum originated in sound symbolism. In the compound verb, awate-hutameku, the latter element derived from mimetic huta plus a derivational suffix -meku.

One way to circumvent the problems was found, however. Once noticed, it is deceptively common-sensical. Hashimoto (1950) hypothesizes that proto-Japanese had /p/

word-initially and word-medially. According to his view, the word-initial /p/ remained only in mimetic words; elsewhere, it was replaced by /h/. As a result, except for loanwords from European languages, it is only in sound-symbolic expressions that one finds initial /p/. For the sake of convenience, I shall call these forms "p-initial mimetic words." Since loanwords of European origin are treated basically as nominals, their adverbial forms are invariably accompanied by ni, a form of the copula da; they are almost never accompanied by the quotative particle to. One rare exception is an English onomatopoeic expression 'tick tock,' which was incorporated in to Japanese as ti'ku-taku to, because of its structural similarity to Japanese bisyllabic mimetic adverbs. Note that the exception proves the rule in this case; it is precisely because the form is mimetic in English that it is assimilated into the Japanese mimetic system.

The above means that p-initial adverbs which are used with the quotative particle to are all mimetic. In other words, p-initial mimetic words are mimetic par excellence. Moreover, out of 1450 or so entries in Asano's dictionary of mimetic words (1978), about 240, or one sixth, are p-initial. Their proportion is exceedingly large in comparison to the proportion of other forms. It is inconceivable that the defining characteristics of p-initial mimetic forms are irrelevant synchronically. We can expect that they are central to the mimetic system. For this reason, I use p-initial forms as the starting point of every analysis in this dissertation, and general patterns observed in p-initial adverbs are used as guidelines.

1.3. Outline

Chapter 2 is an overview of the Japanese sound-symbolic phenomena. It delimits the core of the research, the sound-symbolic system, in terms of its formal characteristics. In addition, the borderline phenomena are described briefly to provide a glimpse of the powerful influence that the mimetic system has on the ordinary stratum of Japanese.

The question of continuity between idealized categories is a recurrent issue in the study of the mimetic system. Chapter 3 deals with the mimetic system as a scaled continuum. The more iconic and the less iconic within the system are contrasted in relation to accentual characteristics.

Chapter 4 and Chapter 5 describe the sound symbolism of monosyllabic and bisyllabic mimetic adverbs respectively. The morphological and phonological components are broken down to sound-symbolically relevant units.

Chapter 6 considers two aspects of the mimetic phonology which have bearing on historical sound changes in Japanese.

Chapter 7 summarizes the features shared by monosyllabic and bisyllabic mimetic adverbs and suggests some implications of this study for studies of sound symbolism in general.

1.4. Definition of Linguistic Varieties in Japanese

Standard Japanese refers to a variety of the Tokyo dialect in the typically middle-class region of Tokyo and its vicinity, of which the writer is a native speaker. This variety is the instrument in much of printed literature. The data for this dissertation were acquired largely from Standard Japanese sources. Other areas of Japan to which references are made in this dissertation are summarized in the following map.



Figure 1-1: Map of Japan

The history of Japanese is traditionally divided into Proto-Japanese, Old Japanese, Middle-Old Japanese, Middle Japanese, Recent Japanese, and Modern Japanese (Sato 1977).

Old Japanese is the language of the oldest existing written records from an era roughly between A.D. 593 and A.D. 794. These written records best document the language of the ruling aristocratic class in the old capitals of Osaka and Nara.

Proto-Japanese is reconstructed on the basis of this historically documented language.

Middle-Old Japanese refers to the language in the Kyoto area between A.D. 794 and A.D. 1086. This language is recorded in a variety of documents.

Middle Japanese refers to the language between 1086 and 1603. The language reflects an expanding area of communication and a rapidly changing social structure. An increasing body of colloquial speech is recorded in the documents.

Recent Japanese refers to the language between 1603 and 1867. The transfer of the political structure from the Osaka-Kyoto area to Edo (Tokyo) occurred in this era, with an ensuing merger of the Osaka-Kyoto linguistic traits into the Edo language. Modern Japanese refers to the language from 1867 to the present.

1.5. Romanization and Abbreviations of Grammatical Terms

The romanization I use in this dissertation for the examples is for the most part the one that Jorden (1963) uses, but I depart from her practice in one important way. While Jorden uses /pp, tt, kk, ss/ for geminate clusters, I use /Q/ to represent the first elements of all these geminate clusters because their sound symbolic value is constant. For a similar functional reason, I use /N/ instead of /n/ to represent the mora nasal. For Japanese names in the main text and the translation, on the other hand, I use the conventional Hepburn romanization. For the Japanese names in the references, I use the Hepburn romanization, unless the authors or their publishers have romanized their names otherwise in print. In

the latter case, I use their spellings. For the titles of the papers and books, however, I use Jorden's romanization.

As explained in §3.1, phonemic pitch fall, or word accent of mimetic forms is marked by /'/; intonational pitch fall is marked by /'/. Accent or intonation is marked only where it is relevant to the discussion.

In the examples, grammatical terms are abbreviated in the following way.

(1-3)	Adv	adverb
	Cont	continuative
	Cop	copula
	Emph	emphatic
	Gen	genitive
	Ger	gerund
	Hon	honorific
	Neg	negative
	Obj	object
	Pass	passive
	Past	past
	Pol	polite
	Pot	potential
	Pres	present
	Ques	question
	Quot	quotative
	Sbj	subject
	Top	topic

1.6. Data Sources

The data for this study came from a wide variety of sources such as ordinary conversation, TV and radio broadcasting, personal letters, advertizement, literary sources, magazines, cookbooks, and children's books. All the translations were rendered by me with the help of a native English speaker. Any errors in judgment are my own responsibility.

CHAPTER 2 AN OVERVIEW OF THE SOUND-SYMBOLIC SYSTEM

2.1. Introduction

In this chapter, an overview of the Japanese sound-symbolic phenomena in terms of their formal characteristics is presented. Finer details of morpho-phonological characteristics of the sound-symbolic system will be discussed later in Chapters 4 and 5.

The core of the Japanese sound-symbolism consists of mimetic adverbs and mimetic "nominal adjectives." We might refer to this core as the Japanese sound-symbolic system. The elements of this system are commonly known as giongo/gitaigo/giseigo 'mimetic words.' The first four sections of this chapter deal with this core. Around this core, we find other sound-symbolic phenomena as appear in nouns, verbs, and adjectives. Although we find certain systematic characteristics in these borderline sound-symbolic phenomena, the formation of these borderline sound-symbolic words is more haphazard than in the core, and it is often only with a high degree of uncertainty that we identify the components as sound-symbolic. Nevertheless, these borderline phenomena form an essential part of the sound-symbolic continuum and warrant our attention. Section 2.5 will briefly describe these borderline phenomena.

2.2. The Grammar of Mimetic Adverbs

2.2.1. Syntax

2.2.1.1. With Verbs and Adjectives

Of the two classes of mimetic words in the sound-symbolic system, if we were to discuss just one, we would have to do it with mimetic adverbs. Almost all unambiguously

mimetic segmental strings can be used as adverbs provided that they are accompanied by the accent patterns of mimetic adverbs. (See Chapter 3.) Most of these mimetic adverbs modify verbs rather than adjectives. See the following examples.

- (2-1) a. Tikaku ni ki -ta kara to iQ -te
neighborhood to come-Past because Quot say-and
musume to beta-beta tukia -u to
daughter with keep company-Pres Quot
i -u taipu no haha de wa ari-mas-eN.
say-Pres type Gen mother Cop Top be -Pol-Neg
'(My mother) is not the type of mother who carries on
the (mother-daughter) relationship in an
overly affectionate way even when she lives in her
daughter's neighborhood. = My mother isn't the type who
toatally depends on me for company when she lives in
my neighborhood.'
- b. Sorede GoN wa ie no uraguti kara koQsori
so Gon Top house Gen back door through
naka e hairi-masi-ta.
inside to enter-Pol -Past
'So, Gon stealthily entered the house through the back
door.'

The mimetic adverb and the verb must be semantically compatible. The use of a given mimetic adverb in a given context narrows the choice of the verb so that it is often predictable and may be omitted. See §2.2.1.3. However, the combinations of mimetic adverbs and verbs are not fixed. A wide range of verbs can be used with a mimetic verb, and vice versa.

The frequency of one verb, however, is singularly higher than other verbs. This verb is suru 'do.' Suru and its continuative form, site iru, appear with a large number of mimetic adverbs as part of idiomatic expressions. See the following.

(2-2)	biQkuri suru	'to get surprised'
	gikuQ to suru	'to be startled'
	kaQ to suru	'to get mad'
	karaQ to suru	'to get dry'
	kyotoN to suru	'to look stupefied'
	tikuQ to suru	'to feel a pricking pain'
	zime-zime suru	'to be damp'
	gata-gata suru	'to be shaky'
	gura-gura suru	'to be wobbly'
	piN-piN site iru	'to be energetic'
	poro-poro site iru	'to be crumbly'
	kiriri to site iru	'to be sharp/smart'

Although not as frequently as verbs, adjectives are also modified by mimetic adverbs. See the following.

(2-3)	poka-poka (to) atatakai	'to be comfortably warm'
	kira-kira (to) mabusii	'to glimmer and be blinding'
	tiku-tiku (to) itai	'to be painful with pricking pains'
	hiNyari (to) tumetai	'to be comfortably cold'

2.2.1.2. Quotative Particles

When mimetic words are used as adverbs, a particle customarily used for quotation, either to or te, is obligatory with certain classes of them and optional with other classes. In general, a particle of quotation is obligatory with more colloquial, more iconic mimetic adverbs and optional with less colloquial, more conventional mimetic adverbs. See §3.1 for details.

There also is a difference between the distribution of to and te. The mimetic adverbs that appear with te are only those that are at the most colloquial and iconic end of the continuum, as below (2-4).

- (2-4) a. Musiba deki-tara haisya -saN ni
bad tooth form-if dentist-Hon by
giri-giri-giri-giriQ" te yar-are -tya -u zo.
do -Pass-end up-Pres Emph
'I'm telling you. If you get a bad tooth, you'll have to
have it drilled by the dentist.'
- b. RaioN-saN to zoo -saN o iQsyo ni
lion -Hon and elephant-Hon Obj together Adv
ire-ru to zoo -saN wa raioN-saN o piiN" te
put-Pres if elephant-Hon Top lion -Hon Obj
tatak-u ka mo sirenai. Raion-saN wa zoo -saN
slap -Pres maybe lion -Hon Top elephant-Hon
wa zoo -saN ni gabuQ" te kamituk-u
Top elephant-Hon to bite -Pres
ka mo sirenai.
maybe
'If you put a lion and an elephant together, the elephant
may knock the lion around, and the lion may take a big
bite out of the elephant.'

Some representative classes of mimetic adverbs and their examples are listed below according to the quotative particles with which they appear. In a table of this kind, glosses are not given because few concise glosses are available that would do justice to the full complex meanings of the mimetic forms. The meanings of these mimetic forms are explained fully in Chapters 4 and 5 with sample sentences.

The list below shows that all mimetic adverbs that appear with te belong to the category that obligatorily requires a quotative particle. To on the other hand can appear with all mimetic adverbs.

(2-5)	a. <u>to</u> or <u>te</u> is obligatory	examples
	CV-CV(V)N" to/te	pi-piN" to/te
	CV-CV(V)Q" to/te	pi-piQ" to/te
	CV(V)N" to/te	piiN" to/te
	CV(V)Q" to/te	piiQ" to/te
	(y-)CVCV-CVCVQ" to/te	paka-pakaQ" to/te
	(y-)CVCV-CVCVN" to/te	paka-pakaN" to/te
	onomatopoetic forms	koke'koQkooQ" to/te
	b. <u>to</u> is obligatory	
	C(y)V(V)N to	piN to
	C(y)V(V)Q to	paaQ to
	C(y)V'Q-CV" to	pa'Q-pa" to
	c. <u>to</u> is optional	
	C(y)V'N-C(y)VN" (to)	pi'N-piN" (to)
	C(y)V'V-C(y)VV" (to)	pi'i-pii" (to)
	(y-)CV'CV-CVCV" (to)	pa'ku-paku" (to)
	(y-)CVQCV'ri" (to)	piQta'ri" (to)
	(y-)CVNVCV'ri" (to)	uNza'ri" (to)

A comparison of the above and the list in (3-1) of §3.1 clarifies that (2-5a) corresponds to Class I, the most iconic accentual class.

2.2.1.3. Verb Ellipsis

As mentioned above, a verb following a mimetic adverb may be omitted. In such cases, the quotative particle is also left out. See the following.

- (2-6) a. Retasu pari-pari, kyuuri pori-pori.
 lettuce cucumber
- '[We munch away at] crisp lettuce and crunchy cucumbers.'

- b. Namae o kii -te gikuQ.
name Obj hear-and

'[I was] startled when I heard the name.'

- c. Tokee ga iti -zi o booN.
clock Sbj one-o'clock Obj

'The clock [struck] one with a bong.'

- d. Hara no musu ga guQ.
stomach Gen insect Sbj

'The insect in my stomach [made] a noise of guQ. = My stomach growled.'

- e. Asi o hayame-te saQ saQ saQ saQ to iki-sugi-ru
feet Obj hasten-and go -pass-Pres

to kane ga goo-----N, kaze ga saa-----.
when bell Sbj wind Sbj

'When he quickened the pace of his walking and passed by the place, he [heard] the bong of the bell [sound] long and weary and the wind [start] rustling.'

Although the above use is very productive, it is limited only to use for dramatic and/or rhythmic effects, and in the more ordinary contexts, constructions with verbs predominate.

2.2.2. Morpho-Phonology of Mimetic Adverbs

2.2.2.1. Monosyllabic and Bisyllabic Mimetic Adverbs

Two major types of mimetic adverbs are those based upon monosyllabic "roots" and those based upon bisyllabic "roots." For simplicity's sake, I call them "monosyllabic mimetic adverbs" and "bisyllabic mimetic adverbs." Note that reduplication of monosyllabic "roots" results in bisyllabic mimetic adverbs, but in order to avoid confusion, these will be identified as "reduplicative mimetic adverbs." For the present discussion, see the following examples of the two categories. The quotative particle and

prosodic features are omitted from the following listing. The glosses are omitted for the reasons given in §2.2.1.2.

(2-7)

Monosyllabic Mimetic Adverbs:

piN	poN	paQ
piiN	pooN	paaQ
piN-piN	poN-poN	paQ-pa
pi-piN	po-poN	pa-paQ

Bisyllabic Mimetic Adverbs:

pakaQ	pakuQ
pakaN	pakuN
paka-paka	paku-paku
paka-pakaQ	paku-pakuQ
	pakuri

In addition, there are a small number of more complex and/or irregular onomatopoetic forms. KokekoOkoo (the rooster's cry) and hoohokeyoo (the Japanese nightingale's singing) are two typical examples of this category. Because these forms are not part of the actual mimetic system, we will largely ignore this category hereafter, although we will refer to it from time to time whenever the contrast between this category and the more systematic core of the system reveals significant facts.

In the above, the term "root" was introduced with quotation marks; the term was intended to refer to /pi-/ , /po-/ , /pa-/ , /paka-/ , /paku-/ , etc.

The use of the term "root" is not too felicitous in the context of sound symbolism. In as much as we are dealing with a system of sound symbolism, all forms are ultimately broken down into semantic units corresponding to phonemes or phonological features. To say that final /N/ is a morpheme while initial /p/ is merely a sound-symbolic unit thereby positing a construction such as /pi-N/ and treating /p/ and /N/ as qualitatively different would be misleading sound-symbolically. It would obscure the fact that /paN/ and /piN/ or /paN/ and /kaN/ are as systematically related to each other as /paN/ and /paQ/ are to each other. When we identify the meanings of constituent elements, then, we will not separate "morphemes" from "phono-semantic" units.

Admitting that this is a borderline area where classifications based upon traditional concepts of morphology do not always coincide with dissections achieved by other criteria, it nevertheless seems meaningful or at least useful, if only for practical purposes, to make a distinction between "monosyllabic" and "bisyllabic" mimetic adverbs because of the following morphological reasons.

First of all, we observe that either /CV/ or /C₁V₁C₂V₂/ (where C₁ ≠ C₂) is obligatory in sound-symbolic forms. All other elements such as vowel length, reduplication, final /Q/ and /N/ are optional. That is to say, we not only have the basis for treating /CV/ and /C₁V₁C₂V₂/ as units parallel to the traditional concept of "root" but also have a support for setting up two morphological classes.

Secondly, optional variations such as reduplication and vowel length operate equally on /CV/ or /C₁V₁C₂V₂/ as a single unit. For example, reduplication of /C₁V₁C₂V₂/ creates /C₁V₁C₂V₂-C₁V₁C₂V₂/. In this sense, /C₁V₁C₂V₂/ forms a coherent unit above phonemes. The sequence /CV/ likewise functions as a unit. This means that, although sound-symbolically /C₁V₁C₂V₂/ may turn out to be /C₁V₁ + C₂V₂/ or even /C₁ + V₁ + C₂ + V₂/, morphologically speaking, /C₁V₁C₂V₂/ behaves as a unit distinct from /CV/.

Third, there are certain operations that are not shared by the two categories. For example, /-ri/ with or without intervening /-Q-/ or /-N-/ is applied only to bisyllabic forms. An example is /pita-ri/ or /pi-Q-ta-ri/ meaning 'exactly.' A related form /pitaQ to/ 'exactly' clarifies that /pita-/ is the root in these forms.

As it turns out, the classification of mimetic adverbs into monosyllabic and bisyllabic adverbs proves to be meaningful in the discussion of phonotactic constraints and iconicity. See §2.2.2.2 and §3.2.

Accepting the basic view above, one might wonder why /pi-piN, po-poN, pa-paQ/, etc., are so identified as reduplicative monosyllabic mimetic adverbs instead of nonreduplicative bisyllabic mimetic adverbs in the way /pakaN/ or /pokaN/ are.

Three facts about these forms support the analysis of these as reduplicated forms. First, as we will see in §4.2.2.1, the meaning of /pi-piN/ is 'hurriedness' which is not present in bisyllabic mimetic adverbs of the similar shape. Second, /pi-pi-piN/ and longer expansions with odd numbers of syllables exist with a meaning similar to the above. These cannot be interpreted as based upon bisyllabic roots. Third, in all these forms, not only the consonants but also the vowels are identical. In forms unambiguously based on bisyllabic roots such as those with /-ri/, consonants must not be identical except in a few k-initial forms, while the first and the second vowels can be either identical or different. This favors the monosyllabic root analysis.

2.2.2.2. General Phonotactic Constraints

2.2.2.2.1. Monosyllabic mimetic adverbs. A large number of monosyllabic mimetic adverbs are onomatopoeic; they imitate sounds. This feature allows what appear to be rather aberrant forms to be incorporated relatively easily into monosyllabic mimetic adverbs. See the following, for example.

- | | | |
|-------|------------|---|
| (2-8) | [weeN̄ to] | (wailing) |
| | [wiQ̄ to] | (a drunk's vocalization expressing content) |

At least, the first of the above cannot be interpreted as */ueeN̄ to/ because monosyllabic mimetic adverbs do not permit a diphthong in the form of */ue/. Nor is it possible to interpret this as a bisyllabic mimetic adverb, because *[weeN̄ to] that would correspond to the characteristic pattern of bisyllabic mimetic adverbs does not occur.

In the rest of Japanese grammar, /we, wi/ appear only in recent Western loanwords. While monosyllabic mimetic adverbs allow such irregular strings, bisyllabic mimetic adverbs do not allow them.

Likewise, initial /r/, which is not allowed in bisyllabic mimetic adverbs, appears in /riiN riin/ to/, an onomatopoeic imitation of the sound of a small bell or an insect chirping. In addition, /ru'N-ruN/ is used profusely in popular magazines for young people and in their speech; this means something like 'fashionably and excitedly.'

(2-9) Moo ru'N-ruN si-te dekake-masi-ta.
already do-and go out -Pol -Past

'She went out very excitedly.'

However, since /ruN-ruN/ does not appear with the accent pattern of */ruN ruN/ to/, it is not an unambiguously mimetic adverb. As we will see in §3.1, this particular accent pattern is the earmark of the most iconic mimetic adverbs. In this sense, /ru'N-ruN/ may be considered not a true mimetic adverb.

The flap /r/ occurs in initial position in monosyllabic roots limitedly as above but never in bisyllabic roots. The glide /y/, in contrast, is absent from the initial position of monosyllabic mimetic adverbs, while appearing in a small number of bisyllabic mimetic words. The glide /y/ is used in vocal segregates that are monosyllabic such as /yaQ/ (a call) and /yoo/ 'Hi' but not in mimetic adverbs.

A summary of the frequencies of various initial consonants in monosyllabic mimetic roots is given below. For the data used in this and other computations, see Appendix A. The frequencies in (2-10) are based upon N and Q ending mimetic adverbs. N ending variations on a single root such as CVN, CVVN, CV-CVN, CVN-CVN, etc. are treated as constituting a single case. Likewise, Q ending variations on a single root such as CVQ, CVVQ, CV-CVQ, CVQ-CV, etc. are treated as one occurrence. Forms with palatalized consonants are omitted from consideration. For the consideration of palatalization, see §6.1.

(2-10)	/p/: 9	/b/: 9	/h/: 7	/m/: 3
	/t/: 7	/d/: 5	/s/: 6	/z/: 6
	/k/: 9	/g/: 8		/n/: 2
	/w/: 7	/Ø/: 8		
	/r/: 1			

The above shows that all obstruents, voiced or voiceless, are more frequently used than nasals.

Using the same data, we can show the frequencies of vowels in monosyllabic mimetic adverbs. See below. This shows that /e/ is considerably less frequent than the other vowels.

(2-11)	/i/: 19
	/e/: 11
	/a/: 18
	/o/: 19
	/u/: 20

2.2.2.2.2. Bisyllabic mimetic adverbs. The phonotactic constraints on the consonants of bisyllabic mimetic adverbs differ slightly depending upon the types of bisyllabic adverbs. Reduplicative forms are different from adverbs of the form CVQCVri or CVNCVri. Figure 2-1 lists the combinations of consonants in reduplicative bisyllabic mimetic adverbs of the form $C_1V_1C_2V_2$ - $C_1V_1C_2V_2$. See Appendix B for the actual forms.

This shows that no form of this type has the same consonant for C_1 and C_2 .

Another apparent constraint is the absence of /r/ in initial position. Also note the underrepresentation of /y/. These two consonants are also limited in monosyllabics. The pattern of occurrence of all other consonants in the first position of bisyllabic mimetic adverbs is not different from that in monosyllabic mimetic adverbs.

The second consonants appear in the following order: /r/ > /k/ > /t/ > /s/ > /b/ > /y/ > /z/ > /w/ > /g/ > /m, n/ > /d/ > /p/ > /h/. That is, /r/ is most frequent; voiceless obstruents excluding /p/ follow it; next follows /b/; glides, voiced obstruents excluding /b/, and nasals follow it; and finally /p/ and /h/ show up.

$\begin{matrix} C_2 \\ C_1 \end{matrix}$	r	k	t	s	b	y	z	w	g	m	n	d	p	h	total
r															0
k	11		12	5	2	1					1	2			34
t	8	10			2	1	1		1	1		1			25
s	4	6	2		2	3		1	1		1		3		23
b	12	8	11	5		2		1							39
y	2		2	1	1										6
z	7	6	1		4			2		1					21
w	4	3	3	3		2	5				2	1		1	24
g	11	5	13	7	6	1	2	1		1					47
m	4	5	2	3		1	5		3						23
n	2	4	4	1	2	2				2					17
d	3	6	1	2	6	1									19
p	11	13	13	5		1		1							44
h	6	4	5	4		3		1	1		1				25
total	85	70	69	36	25	18	13	7	6	5	5	4	3	1	347

Figure 2-1: Consonant Combinations in $C_1V_1C_2V_2$ - $C_1V_1C_2V_2$

$C_1 \backslash C_2$	r	t	k	s	p	y	m	w	n	b	z	g	d	h	total
r															0
t	4		1		2		1								8
k	8	3	5	2	1										19
s	4	1	3		3				1						12
p	7	11	10	2											30
y	1	1	1												3
m		2	2	1							1				6
w			1	1											2
n	2	3	1	1		1	1			1					10
b	1	6	4	3		1									15
z		1	1	1	2			1		1					7
g	4	6	2	4	1				1						18
d	2	1	2	2	2	1									10
h	3	1	2	2		1		1							10
total	36	36	35	19	11	4	2	2	2	2	1	0	0	0	149

Figure 2-2: Consonant Combinations in CVQCVri or CVNVCVri

Figure 2-2, on the other hand, lists the combinations of consonants in bisyllabic mimetic adverbs with the form of CVQCVri or CVNVCVri. See Appendix C.

The absence of /r/ from both the first and the second position is conspicuous. The absence of /r/ from the initial position is the feature that permeates the whole mimetic system. The absence of /r/ from the inventory of the second consonants is limited to this particular type of mimetic adverbs. This is because of the constraint on consonant clusters in mimetic adverbs: the clusters /Qp, Qt, Qk, Qs, Nb, Nm, Nz, Nn, Ny, Ng, Nw/ exist; other combinations do not. That is, only voiceless obstruents participate in geminate clusters, and only voiced obstruents, nasals, and glides follow /N/. The consonant /h/, which is almost non-existent in the second syllable of bisyllabic mimetic roots in general, is absent from the second syllable of this type, too. The absence of /Nd/ seems to be accidental; the frequency of voiced obstruents is not high in this position, and historically /d/ merged with /z/ before high vowels /i, u/ (Mabuchi 1971).

As for the frequencies of the consonants in the first syllable, there is not much difference between this type of mimetic adverb and the reduplicative bisyllabic or the monosyllabic mimetic adverbs. A major difference turns up in the second syllable, where the order of the consonants is /r/ > /t, k/ > /s/ > /p/ > /y/ > /m, w, n, b/ > /z/ > /g, d, h/. Note the reverse order of /p/ and /b/ compared to that in the reduplicative type. For the implications of this, see §6.2.

Another difference concerns /k/. In this type of bisyllabic mimetic adverb, the constraint on the combination of the first and the second consonant is violated by those forms possessing /k/ in both positions. These are koQkiri 'meagerly and exactly,' kaQkiri 'exactly,' kiQkari 'exactly'; kuQkiri 'vividly,' and koQkuri 'tasting rich.' These forms are aberrant in that no other consonant can appear this way in either type of bisyllabic mimetic adverb.

Finally, it will be noticed that in both types, voiced obstruents are less frequent than voiceless obstruents in the second syllable. In the first syllable, voiced obstruents are just as frequent as voiceless obstruents. This is part of one general characteristic trait of bisyllabic mimetic adverbs; there are more contrasts in the first syllable than in the second syllable. Another case in point is palatalization in bisyllabic mimetic adverbs. As we will see in §6.1, palatalization applies to the first syllable if there is no alveolar consonant in the second syllable.

The frequencies of the vowels in the first and the second syllable of the reduplicative bisyllabic mimetic adverbs are as follows.

(2-12) a. in the first syllable

/i/:	61
/e/:	41
/a/:	64
/o/:	94
/u/:	87

b. in the second syllable

/i/:	72
/e/:	15
/a/:	122
/o/:	72
/u/:	66

The above shows that /e/ is the least used in both positions. Also, /e/ in the second syllable is considerably less frequent than other vowels, while /a/ in the second syllable is considerably more frequent than other vowels. Compare this situation with the first syllable where the vowels are more or less evenly spread out, and the high frequency of /a/ suggests another case of neutralized contrast in the second syllable.

2.2.2.2.3. Semi-reduplicative mimetic adverbs. A considerable number of mimetic adverbs consist of two different roots. These roots are habitually put together, and the accent of the adverbs conforms to the least iconic accent pattern of the reduplicative mimetic adverbs; that is, the pitch falls after the first mora.

In one type, the vowels in the first and second root differ, but the consonants are the same. See the following list with sample objects that the mimetic words describe.

(2-13)	ka'ra-koro	the sound of wooden clogs
	ka'ta-koto	the sound of small hard objects hitting against a box
	ka'sa-koso	the sound of dry leaves
	ga'ta-goto	the sound of trains

All of the above have /k/ or /g/ initially, and /-a-a/ of the first item is replaced by /-o-o/ in the second. There are no other examples of this sort, except that expanded forms of the above exist as fixed expressions such as /kara'N koro'N/ (e.g., the sound of wooden clogs).

In the second type, the first moras of the two items are different; the second moras are identical. In the following, glosses are provided where possible; otherwise, sample objects that the mimetic words describe are given.

(2-14)	pe'tya-kutya	'chitter-chatter'
	bo'ka-suka	sudden and heavy snow fall
	he'do-modo	'being flustered'
	mu'sya-kusya	'being sullen'
	ti'ku-taku (< Tick Tock)	'tick tock'
	ti'ra-hora	light snowfall
	ti'ya-hoya	'flattering'
	te'ki-paki	'efficiently'
	tu'be-kobe	'complaining about this and that'
	de'ko-boko	'with bumps'
	do'ta-bata	'stamping noisily'
	do'ka-suka	'in a large quantity'
	do'gi-magi	'being flustered'

zi'ta-bata	'moving around in vain to free oneself'
zya'ka-suka	'noisily'
no'ra-kura	'lazily'
gi'ku-syaku	'in an uncoordinated movement'
a'ta-huta	'in a hurry'
u'ro-tyoro	'moving around restlessly'
ya'ki-moki	'worriedly'

In the third type, entirely dissimilar roots are juxtaposed, as in the following.

(2-15)	pi'i-tiku	shrill peeping of a bird
	pa'ti-kuri	'blinking eyes'
	bu'tu-kusa	'complaining sullenly'
	bu'u-suka	the loud sound of a trombone
	tyo'ko-maka	'moving around in small steps'
	so'so-kusa	'busily'
	ga'ta-pisi	the noise from an old cart
	gu'u-suka	'sleeping deeply'

All of the above have only one accented syllable; they are single words. A small number of mimetic adverbs consist of two words which are customarily used together.

(2-16)	pi'i-tiku pa'a-tiku	shrill peeping
	dota'N bata'N	'stamping noisily'
	dosi'N bata'N	'stamping noisily'
	nora'ri kura'ri	'lazily'
	e'Qtira o'Qtira	'toiling'

2.3. The Grammar of Mimetics as Nominal Adjectives

2.3.1. Syntax

In Japanese grammar, there is a category of words called keeyoo-doosi 'adjective verbs.' Following Kuno (1973), I will call them "nominal adjectives." These words are similar to adjectives in semantic and grammatical roles; they are also similar to nouns in the way they appear with the copula. They represent qualities rather than actions and, unlike nouns, are not the head of a noun phrase. Like nouns, however, they do not inflect and appear unchanged in front of the copula, desu/da. RiQpa 'splendid' is one example. See the following.

(2-17)	riQpa da/desu	'it is splendid'
	riQpa na tatemono	'a fine building'
	riQpa ni tateru	'to build splendidly'
	riQpa de	'it is splendid, and . . .'

A large number of mimetic words are used in the same way as nominal adjectives, and their use is commonly identified as "use of mimetic words as adjective-verbs."

Compare the following with above (2-19).

(2-18)	bara-bara da/desu	'it is disorganized'
	bara-bara no/na keekaku	'uncoordinated plan'
	bara-bara ni tateru	'to build uncoordinatedly'
	bara-bara de	'it is disorganized and . . .'

The only difference between the non-mimetic and the mimetic nominal adjectives is that the mimetics employ no as well as na before a noun; impressionistically, no seems to be used more frequently for mimetic nominal adjectives than na.

2.3.2. Morpho-Phonology of Mimetic Nominal Adjectives

The mimetic nominal adjectives are classified into the following categories.

(2-19) a. accentless reduplicative and semi-reduplicatives

examples

(y-)CVCVN-CVCVN betyoN-betyoN 'soaked'

(y-)CVCV-CVCV gata-gata 'shaky'

C(y)VN-C(y)VN puN-puN 'angry'

C(y)VV-C(y)VV gyuu-gyuu 'tight'

b. accented forms with /-ri/

(y-)CVQCV'ri piQta'ri 'just right'

In addition to these, there are a few exceptional forms such as /kiN-kira-kiN/ 'glittering.'

Compare the above with (3-1) in §3.1. The similarity between the above classes and those in (3-1) that belong to the less iconic classes is apparent. The only difference is that the reduplicative mimetic nominal adjectives are accentless. Also apparent is the paucity of varieties in mimetic nominal adjectives as compared to the varieties of mimetic adverbs. For instance, partially reduplicative mimetic nominal adjectives which would correspond to adverbial forms such as /pa'Q-pa'' to/ 'quickly' do not exist. Nor is expansion allowed for mimetic nominal adjectives. Also, mimetic nominal adjectives of the form /CVCVri/ do not exist. This means that mimetic nominal adjectives comprise a more limited and fixed inventory of conventionalized forms than mimetic adverbs.

Kindaichi (1978) says that the mimetic adverbs and mimetic nominal adjectives are inflectional variations of the same "adjectives" differing only in accent if at all. However, as we shall see in §2.4, when mimetic nominal adjectives and mimetic adverbs are used as modifiers of nouns, the semantics of mimetic nominal adjectives is not the same as that of mimetic adverbs. Mimetic nominal adjectives tend to indicate abstract qualities rather than

on-going actions and sounds. In particular, they do not imitate sounds. See the following.

- (2-20) a. paN-paN ni naru 'to stretch out'
(nominal adjective)
- b. paN paN to tatau 'to hit with the sound of paN
(adverb) paN'
- (2-21) a. kaN-kaN ni naru 'to get angry'
(nominal adjective)
- b. kaN kaN to tatau 'to hit with the sound of kaN
(adverb) kaN'

Since there are more mimetic adverbs than mimetic nominal adjectives and since there is an iconic-conventional continuum between the mimetic adverbs and the mimetic nominal adjectives, it seems best to interpret mimetic nominal adjectives as conventionalized derivations of mimetic adverbs.

2.4. Mimetic Words in Noun Phrases

2.4.1. General Characteristics of Japanese Noun Phrases

Generally speaking, verb phrases that include mimetic adverbs are transformed into noun phrases just like most other verb phrases in Japanese. Provided that the noun is thematizable in the sense of Kuno (1973), any noun in a sentence with a verb phrase, whether the verb phrase include a mimetic adverb or not, can be taken out and relativized by simply dropping its particle and preposing the verb phrase to the noun. See below.

(2-22) underlying

Satoo-saN ga Yamada-saN ni riNgo no kawa o
Sato -Hon Sbj Yamada-Hon to apple Gen skin Obj

kuru-kuru mui-te age-ta.
peel-Ger give-Past

Mrs. Sato peeled the skin of an apple into a spiral for
Mrs. Yamada.'

(2-23) a. relativized with ringo as head noun

[Satoo-saN ga Yamada-saN ni kawa o
Sato -Hon Sbj Yamada-Hon to skin Obj

kuru-kuru mui-te age -ta] riNgo
peel-Ger give-Past apple

'the apple whose skin Mrs. Sato spirally peeled for Mrs.
Yamada'

b. relativized with Yamada-san as head noun

[Satoo-saN ga riNgo no kawa o kuru-kuru
Sato -Hon Sbj apple Gen skin Obj

mui-te age-ta] Yamada-san
peel-Ger give-Past Yamada-Hon

'Mrs. Yamada for whom Mrs. Sato peeled the skin of the
apple spirally'

c. relativized with Satoo-saN as head noun

[Yamada-saN ni riNgo no kawa o kuru-kuru
Yamada-Hon to apple Gen skin Obj

mui-te age-ta] Satoo-saN
peel-Ger give-Past Sato -Hon

'Mrs. Sato who peeled the skin of an apple spirally for
Mrs. Yamada'

2.4.2. Mimetic Adverbs with the Verbs Iu 'To Say' and Sita 'Did'

Two types of noun phrases with mimetic adverbs call for our attention. These noun phrases have either iu 'to say' or sita 'did' as part of the modifier. See below.

(2-24) a. goon to iu oto
sound

'sound ringing like goon = eg. the bong of the bell'

- b. pikaQ to iu hikari-kata
shine-manner

'a way of shining that says pikaQ = flashing'

- c. pota-pota to iu oti-kata
fall-manner

'a way of falling accompanied by the sound of pota-pota
= dripping'

- (2-25) a. piti-piti sita ugoki-kata
move-manner

'lively movement'

- b. taOpuri (to) sita huku
outfit

'loose outfit'

Each of the above two types exhibits particular characteristics which separate them from ordinary noun phrases. For example, the sentences in (2-24) above cannot be tied to any underlying sentences that have all of the components of the phrases as their constituents. The sentences in (2-26) below are ungrammatical. The sentences in (2-24) above are cases of "non-relativizing nominalization" which Makino (1968) describes.

- (2-26) a. *Oto ga gooN to iu.
sound Sbj say

'?The sound says bong.'

- b. *Hikari-kata ga pikaQ to iu.
shine-manner Sbj say

'?The mode of shining is glaring.'

The second type differs from the ordinary noun phrase in that sita, which literally means 'did,' is semantically tenseless in these constructions. The underlying sentences of (2-25) are the following.

- (2-27) a. Ugoki-kata ga piti-piti si-te i -ru.
move-manner Sbj do-Ger Cont-Pres

'The movement is lively.'

- b. Huku ga taOpuri si-te i -ru.
outfit Sbj do-Ger Cont-Pres

'The outfit is loose.'

Mere inversions of (2-25) result in ungrammatical constructions in (2-28).

- (2-28) a. *Ugoki-kata ga piti-piti si-ta.
b. *Huku ga taQpuri si-ta.

In the following section, we will closely look at the characteristics of each.

2.4.3. Iu

Iu in conjunction with mimetic words and the obligatory quotative particle to or te is used to expressively describe "physical actions" by way of "quoting" them iconically.

Most characteristically, iu is used to indicate or imply certain sounds by "quoting" them with the use of words known as gioNgo "sound-mimicking words." This is understandable since iu means 'to say.' See the following.

- (2-29) a. kokekoOkoo to iu niwatori no nakigoe
coakadoodle-doo Quot say rooster Gen cry
'a rooster's cry that sounds like cockadoodle-doo'
- b. moo to iu nakigoe
moo Quot say cry
'the crying sound that sounds like moo = mooing'
- c. waaQ to iu kaNsee
clamor
'clamor that sounds like waaQ = a sudden loud clamor'
- d. zaa-zaa to iu mizu no oto
water Gen sound
'the sound of water that sounds like zaa-zaa = the sound of torrents'

- e. sakuQ sakuQ to iu oto
sound

'the sound that sounds like sakuQ sakuQ = e. g. wooshing
sound of footsteps in the snow'

The mimetic adverbs in the following also may be considered to indicate sounds.

- (2-30) a. gata-gata-gataQ to iu taore-kata
Quot say fall -manner

'the manner of falling with the sound of
gata-gata-gataQ = the way heavy objects fall in a row'

- b. zaaQ to iu kobore-kata
Quot say spill -manner

'the manner of spilling with the sound of zaaQ = e. g. the
way a large quantity of liquid gushes out when spilled'

In (2-30a) and (2-30b) above, only iu may be used to tie the noun indicative of sound and the sound-mimicking words. Sita is not allowed in this context. On the other hand, even when the noun denotes sound, if the modifier is not onomatopoetic and qualifies the noun in some other way, sita must be used. See the following.

- (2-31) a. kiriQ to sita koe
voice

'crisp voice'

- b. *kiriQ to iu koe

In §3.1, accentual classes of mimetic adverbs will be discussed. Of these classes, some of the least iconic classes are virtually never used with iu in the above fashion. For example, accentless monosyllabic adverbs (e.g., paaQ to 'rapidly') and bisyllabic adverbs with /-ri/ (e.g., pisya'ri 'abruptly and firmly') rarely appear this way. The reason evidently is because these conventionalized forms do not imitate sound. On the other hand, the more irregular and unsystematic onomatopoetic forms such as those imitating animal vocalizations (e.g., kokekoQkoo 'dockadoodle-doo') are used only with iu when modifying nouns. Also the expanded and more expressive forms of mimetic adverbs

appear with iu, as we saw in (2-29e) and (2-30a) above; these forms also do not occur with sita when modifying nouns.

As stated, the above cases involve forms ordinarily known as gioNgo "sound-mimicking words." A straightforward statement could be made, if only gioNgo were used with iu. As it turns out, however, there are other cases which are difficult to interpret as cases of sound-mimicking. See the following.

- (2-32) a. tara-tara to iu nagare-kata
flow -mode

'a mode of flowing that says tara-tara = thick running'
- b. hyoiQ hyoiQ to iu tobi-kata
jump-manner

'a manner of jumping that says hyoiQ hyoiQ = consecutive hopping'
- c. tikuQ to iu itami
pain

'pain that says tikūQ = a pricking pain'
- d. ziiN to iu mahikaN
numbing sensation

'a numbing sensation that says ziiN = tingling feeling of numbness'
- e. syariQ to iu hazawari
feeling on the teeth

'the feeling on the teeth that says syariQ = crisp touch'
- f. betaQ to iu kaNzi
feeling

'the feeling that says betaQ = sticky feeling'

Dictionaries do not classify these mimetic forms as gioNgo 'sound-mimicking words.' For example, Asano (1978) designates these as gitaigo 'mode-mimicking words.'

- (2-37) a. keNkyuu (o) si-ta
research Obj do-Past

'(I) did research'

- b. piN piN to si-ta
do-Past

'(I) did the action of piN piN = e.g., I struck the string
twice'

The verb sita in (2-37) can be replaced by a synonym yaQta 'did' as shown in (2-38).

- (2-38) a. keNkyuu (o) yaQ-ta
research Obj do-Past

'(I) did research'

- b. piN piN to yaQ-ta
do-Past

'(I) did the action of piN piN = e.g., I struck the string
twice'

On the other hand, the semantically vacuous sita cannot be replaced by yaQta. In the following, (2-39b) is ungrammatical.

- (2-39) a. pika-pika sita iwasi
herring

'shiny herrings'

- b. *pika-pika yaQta iwasi
herring

Another characteristic of the noun phrases in question is that their underlying sentences always have the relativized nouns of the noun phrases as their subjects, and only as their subjects. In other words, these noun phrases resemble the type of noun phrases consisting of adjectives and nouns or of nominal adjectives and nouns.

Thus, the role of sita in question is largely to form a grammatical construction of adjective-like mimetic modifiers. This seems to be why Miyazi (1978) calls such cases of sita zyootaisei-keesiki-doosi 'stative formal verbs.' It should be noted that these syntactic

characteristics of mimetic words plus sita are the same as those exhibited by certain verbs classified simply as the fourth class of Japanese verbs by Kindaichi (1950) and as 'D-verbs' by Nagashima (1976). Here, we will use Nagashima's term and refer to them as 'D-verbs.' Some examples of D-verbs are as follows.

- (2-40) a. bakage -ta situmoN
be foolish-Past question
'a foolish question'
- b. SitumoN ga bakage -te i -ru.
question Sbj be ridiculous-Ger Cont-Pres
'The question is ridiculous.'
- (2-41) a. odoke -ta ugoki-kata
be comical-Past move-manner
'a commical movement'
- b. Ugoki-kata ga odoke -te i -ru.
move-manner Sbj be comical-Ger Cont-Pres
'The movement is comical.'
- (2-42) a. ni -ta katati
be similar-Past shape
'a similar shape'
- b. Katati ga ni -te i -ru.
shape Sbj be similar-Ger Cont-Pres
'The shape is similar.'

Hence, we will call these particular constructions of mimetic adverbs and sita or site iru as mimetic D-verbs.

2.4.5. Mimetic D-verbs and Mimetic Nominal Adjectives

We have seen that not all mimetic words can be used with ju as modifiers in noun phrases. We have also seen that restrictions exist as to the semantic categories of nouns that can be modified by such constructions. Likewise, restrictions exist as to the mimetic adverbs used in mimetic D-verbs. To start with, contrary to the case of ju, genuinely onomatopoeic mimetic words do not appear in mimetic D-verbs. This kind of restriction is understandable given the nature of D-verbs in general which indicate qualities rather than actions. In this section, we will look at the contexts of mimetic D-verbs a little more closely.

In accomplishing this task, we need to contrast mimetic D-verbs with mimetic nominal adjectives. This is because the latter, being similar to adjectives, also indicate qualities rather than actions and appear in the same grammatical slots as mimetic D-verbs.

The question is if there is any semantic or otherwise systematic difference between mimetic D-verbs and mimetic nominal adjectives. Indeed, we see that in certain cases, the two seem to be interchangeable without apparent differences in meaning. See the following.

- | | | | |
|--------|----|-----------------------------|--|
| (2-43) | a. | <u>boso-boso sita</u> gohaN | ' <u>dry</u> (improperly cooked) rice' |
| | b. | <u>boso-boso no</u> gohaN | ' <u>dry</u> (improperly cooked) rice' |
| (2-44) | a. | <u>gori-gori sita</u> imo | ' <u>hard</u> potato' |
| | b. | <u>gori-gori no</u> imo | ' <u>hard</u> potato' |
| (2-45) | a. | <u>beto-beto sita</u> te | ' <u>sticky</u> hand' |
| | b. | <u>beto-beto no</u> te | ' <u>sticky</u> hand' |
| (2-46) | a. | <u>zara-zara sita</u> kami | ' <u>coarse</u> paper' |
| | b. | <u>zara-zara no</u> kami | ' <u>coarse</u> paper' |
| (2-47) | a. | <u>piQtari sita</u> namae | ' <u>appropriate</u> name' |
| | b. | <u>piQtari no</u> namae | ' <u>appropriate</u> name' |

- b. * pota-pota no oti -kata

Of the above mimetic nominal adjectives, only (2-52b) is non-existent; the other nominal adjectives exist, as in pika-pika no tukue 'shiny desk,' piti-piti no zuboN 'very tightly fit pants,' and gata-gata no kuruma 'run-down automobile.' Nevertheless, only the mimetic D-verbs are allowed above. Certainly, there are more mimetic D-verbs than mimetic nominal adjectives, and most of the mimetic D-verbs, like (2-52), do not have counterpart mimetic nominal adjectives. However, the important point is that we find no case where the relationship is reversed, i.e., where the mimetic nominal adjective alone is used with a nominalized form of a verb of action. Hence, this is a structural/semantic constraint rather than a statistical coincidence.

Likewise, nouns indicating voice, movements, feelings, sensations, personal characteristics, attitudes, and facial expressions are modified by mimetic D-verbs rather than mimetic nominal adjectives.

- (2-53) a. kiN-kiN sita koe
voice
'high-pitched voice'
- b. saku-saku sita hazawari
touch on the teeth
'crisp light texture (of food)'
- c. sowa-sowa sita taido
behavior
'restlessness'
- d. tyara-tyara sita taido
attitude
'irresponsible attitude'
- e. saQpari sita kaQkoo
appearance
'simple and clean appearance'

- f. saOpari sita azi
taste
'refreshing taste'

Another category of nouns that are modified by mimetic D-verbs is that of animate objects, as people and live animals. See the following.

- (2-54) a. sina-sina sita karada 'flexible body'
b. kyoro-kyoro sita kodomo 'child full of curiosity'
c. haki-haki sita hito 'spirited person'
d. kiOtiri sita hito 'punctual person'

In the above example, only D-verbs may be used. Some nouns may be modified by both mimetic D-verbs and mimetic nominal adjectives, as we have seen in (2-44) through (2-49). Also, even nouns derived from verbs may be modified by mimetic nominal adjectives, if they can refer to the stative result of an action. See below.

- (2-55) a. gotya-gotya sita narabe -kata
lay out-manner (=nominalizer)
'messy manner of arrangement'
b. gotya-gotya no narabe -kata
lay out-manner (=nominalizer)
'messy arrangement (as a result)'

A large number of nouns which indicate stative objects, on the other hand, may be modified only by mimetic nominal adjectives, as in (2-56). For these nouns, corresponding D-verbs produce ungrammatical phrases.

- (2-56) a. yore-yore no koto 'shabby coat'
b. giri-giri no zikan 'close timing'
c. goti-goti no imo 'hard potato'
d. gura-gura no yu 'boiling hot water'
e. gusyo-gusyo no yoohuku 'drenched dress'
f. gusya-gusya no omuretu 'sloppy omlet'

The phrase in (2-60a) above indicates an uncoordinated, untimed sequence of movements by an individual or individuals. The phrase in (2-60b) on the other hand indicates different uncoordinated movements which are going on all at the same time. In other words, the mimetic D-verb in (2-60a) concerns 'temporal change,' while the mimetic nominal adjective in (2-60b) concerns 'synchronic diversity.' The contrast is basically that of 'action' and 'non-action.'

The contrast between 'movement' and 'stativeness' occasionally appears in the form of the contrast between 'physical dimensions' and 'non-dimensional properties.' See the following.

- (2-61) a. karada ni piQtari sita huku
body to outfit
'an outfit that fits the body just right'
- b. natu ni piQtari no huku
summer to outfit
'an outfit that is appropriate in summer'

In (2-61a), the outfit fits the physical dimensions of the body; in (2-61b), the outfit meets the requirements of summer in terms of non-dimensional properties such as color, thickness, appearance, style, material, etc..

Semantic classifications are always a nebulous business, because one can play with them and attach unusual meanings to grammatically correct expressions. Nevertheless, the oddity of expressions that transgress semantic boundaries is striking to the native speaker. The ridiculousness of (2-62b) as compared to the naturalness of (2-62a) stems from this.

- (2-62) a. pika-pika sita iwasi no mure
sardine Gen school
'a school of shiny sardines'
- b. *pika-pika no iwasi no mure
sardine Gen school
'a school of shiny sardines (?)'

Because a nominal adjective is used instead of a mimetic D-verb, (2-62b) sounds as if the sardines were either made of metal and polished or stuffed and greased. One native speaker, when he heard this expression, reacted to it by bursting out into laughter as he said, "There is no such thing!"

To summarize, although there are cases where the contrast is not clear as in (2-43) through (2-48), the mimetic D-verbs generally indicate 'movements,' 'physical dimensions' and so on, while the mimetic nominal adjectives indicate 'inanimateness' and more abstract ideas. Taking into account the characteristics of mimetic modifiers with ju, we can identify a continuum of iconicity in mimetic modifiers: forms with ju are most iconic, and mimetic nominal adjectives are least iconic. This is also reflected in the morpho-phonological characteristics of respective categories. We have already seen that forms with ju contain more dramatic, mimetic, and creative or irregular forms than mimetic D-verbs. Mimetic D-verbs in turn contain more dramatic mimetic forms than mimetic nominal adjectives. Recall that only reduplicated or semi-reduplicated mimetic forms and those with /-ri/ are used with mimetic nominal adjectives; unreduplicative forms are not used. Besides, reduplicative mimetic forms in nominal adjectives carry no accent, which is one of the least mimetic of all accentual types. Also the majority of mimetic nominal adjectives are based on bisyllabic roots, which are less mimetic than monosyllabic roots. This problem of iconic continuum will be taken up again in Chapter 3.

It was suggested in §2.4.4 that sita in mimetic D-verbs is almost vacuous semantically, but the present discussion leads us to the revised conclusion that the semantics of sita is partially reflected in the sense of 'animateness.'

2.5. Derivations

2.5.1. Nouns

A number of nouns clearly derive from mimetic words; most of them are used in slang, colloquial speech, casual writing or baby talk (=adult speech to young children). Those unambiguously demonstrable as of mimetic origin belong to either the phonological type in (2-63) or the phonological type in (2-64) below.

The words shown in (2-63) are phonologically indistinguishable from the most conventional mimetic adverbs; their accent falls on the first syllable and the majority of them are reduplicative forms of monosyllabic roots. Many of them are used in baby talk, and, deriving from onomatopoetic mimetic words, they indicate objects or animals that produce such sounds.

(2-63)	a.	wa'N-waN	'dog' (from the barking of dogs)
	b.	ko'N-koN	'fox' or 'coughing' (from the sound of foxes or coughing)
	c.	po'Q-po	'locomotive' (from its sound)
	d.	po'N-poN	'tummy' (from the sound one would produce when tapping the belly)
	e.	tyu'u-tyuu	'mouse' (from its sound)
	f.	tyu'N-tyuN	'small bird' (from the sound of chicks)
	g.	pi'ka-doN	'A-bomb' (from its sound and flashes)
	h.	to'N-kati	'hammer' (from the sound of hitting with a hammer)
	i.	boi'N	'female breast' (from the sound of hitting a voluminous object)

The words in (2-64) below are phonologically indistinguishable from mimetic nominal adjectives; they are accentless reduplicative forms. They are different from nominal adjectives in that they can appear as subject or object of a sentence. Interestingly

enough, only reduplicative forms of bisyllabic mimetic roots are used this way as nouns, although there are both monosyllabic and bisyllabic mimetic nominal adjectives.

- | | | | |
|--------|----|-------------|--|
| (2-64) | a. | syabu-syabu | 'a Japanese dish with thinly sliced meat'
(from the sounds one makes when moving
meat in the soup) |
| | b. | putu-putu | 'small dots or protrusions' |
| | c. | potu-potu | 'small dots' |
| | d. | butu-butu | 'protrusions on coarse or thick objects' |
| | e. | nuru-nuru | 'sticky substance' |
| | f. | hira-hira | 'frills' |
| | g. | kasa-kasa | 'dry rough place on skin' |
| | h. | gara-gara | 'baby's rattle' |

Clearly the above use of accentless bisyllabic mimetic reduplicative forms as nouns derives from the syntactic similarity of nominal adjectives to nouns. The fact that no accentless reduplicative forms of monosyllabic roots are used as nouns of the type shown in (2-64) above seems to be a correlate of the fact that there are few monosyllabic mimetic nominal adjectives to start with. Therefore, we may consider the absence of accentless monosyllabic mimetic nouns as a statistical coincidence. Of course, the very fact that there are few monosyllabic nominal adjectives is not a coincidence. It is the consequence of the strong iconicity of monosyllabic mimetic roots which defy conventionalization. In this sense, the absence of accentless monosyllabic mimetic nouns is also the consequence of this strong iconicity of monosyllabic mimetic roots.

The absence of accented reduplicative bisyllabic mimetic nouns in (2-63), on the other hand, is not a statistical coincidence, because there are a large number of accented reduplicative bisyllabic mimetic adverbs. The reason is not clear, but it may be due to the strong onomatopoetic requirement of baby talk and similar borderline phenomena.

2.5.2. Compound Nouns

A type of compound noun in which a bi-moric mimetic form is preposed to a noun is shown below.

- (2-65)
- | | |
|--------------------------|--|
| a. <u>beta</u> -home | ' <u>thick and sticky</u> praise = excessive praise' |
| b. <u>boro</u> -gire | ' <u>tattered</u> cloth = rag' |
| c. <u>boro</u> -dama | ' <u>junk</u> ball = badly pitched ball' |
| d. <u>doka</u> -beN | ' <u>large</u> lunch box = large lunch eater' |
| e. <u>dosya</u> -buri | ' <u>torrential</u> rain' |
| f. <u>gui</u> -nomi | ' <u>abrupt and forceful</u> drinking = gulping' |
| g. <u>kosō</u> -doro | ' <u>sneak</u> thief' |
| h. <u>tyobi</u> -hige | ' <u>small</u> mustache' |
| i. <u>zaku</u> -giri | ' <u>rough</u> slicing' |
| j. <u>zara</u> -gami | ' <u>coarse</u> paper' |
| k. <u>boro</u> -mo(')oke | ' <u>rag</u> profit = easy money' |
| l. <u>boro</u> '-ya | ' <u>dilapidated</u> house' |
| m. <u>soyo</u> '-kaze | ' <u>soft</u> wind = breeze' |

The compounding of a reduplicative or semi-reduplicative mimetic word and a noun is shown below.

- (2-66)
- | | |
|-------------------------------|---|
| a. <u>gyuu-gyuu</u> -zume | ' <u>tight</u> packing' |
| b. <u>zaa-zaa</u> -buri | ' <u>torrential</u> rain' |
| c. <u>niko-niko</u> -gao | ' <u>smiling</u> face' |
| d. <u>nora-kura</u> -mono | ' <u>lazy</u> person' |
| e. <u>guu-tara</u> -ko'Nzyoo | ' <u>lazy</u> disposition' |
| f. <u>doN-tyaN</u> -sa'wagi | ' <u>boisterous</u> merrymaking' |
| g. <u>dota-bata</u> -ki'geki | ' <u>noisy</u> comedy = slapstick comedy' |
| h. <u>bara-bara</u> -sa'tuzin | ' <u>scattering</u> murder = mutilation murder' |

- i. giku-syaku-u'NteN 'clumsy driving'
- j. peN-peN-gusa 'clinking grass = shepherd's
purse (plant)'

The third type is the compounding of a mimetic word ending with /-ri/ and a noun.

- (2-67)
- a. zuNguri-gata 'stocky type'
 - b. tyaQkari-ya 'calculating person'
 - c. poQkuri-byoo 'suddenly (dying) disease'
 - d. huNwari-o'muretu 'soft omelet'
 - e. biQkuri'-bako 'surprise box = jack-in-the-box'

The accent pattern of these compound nouns agrees with the description of compound nouns by McCawley (1977). If the final element is three or more moras long, the accent is placed on the first mora of the final element. If the final element is less than three moras long, there are three types of accent according to McCawley. In the above we see only two. In most of the above compounds in which the final element is less than three moras long, the compounds are accentless. In (2-65l), (2-65m), (2-66j) and (2-67e), on the other hand, the accent is on the last syllable of the first element.

2.5.3. Other Compounds

There are a small number of compound verbs, compound adjectives, and compound nominal adjectives that contain mimetic words.

Compound verbs are shown in (2-68) below. Compound adjectives are shown in (2-69). Compound nominal adjectives are shown in (2-70).

- (2-68)
- a. tyoro-makasu 'defeat cheaply = cheat'
 - b. tyoN-giru 'cut in a quick, short stroke =
snip'
 - c. bura-sagaru 'dangle loosely'

- | | | | |
|--------|----|-----------------------|---|
| (2-69) | a. | <u>horo</u> -nigai | ' <u>slightly</u> bitter' |
| | b. | <u>muzu</u> -gayui | ' <u>creepy</u> -itchy = creepy' |
| | c. | <u>hyoro</u> -nagai | ' <u>skinny</u> and long = lanky' |
| (2-70) | a. | hara- <u>peko</u> da | 'the stomach is <u>flat</u> = (she) is starving hungry' |
| | b. | hana- <u>petya</u> da | '(his) nose is <u>flat</u> ' |
| | c. | maru- <u>potya</u> da | '(she) is round and <u>plump</u> = (she) is plump' |
| | d. | <u>gara</u> -aki da | '(the store is) <u>completely</u> empty' |

2.5.4. Verbs Derived from Mimetic Words

2.5.4.1. /-tuk-/ and /-mek-/

A large number of verbs seem to be related to mimetic words. A considerable number of them are clearly traceable to mimetic words. These are formed by addition of derivational suffixes to mimetic words. The most productive of them is the derivational suffix /-tuk-/. This suffix is used exclusively with mimetic roots, and its meaning is 'to overtly/excessively exhibit the feature of (the mimetically expressed condition).' Note that only bisyllabic mimetic words are used with /-tuk-/. Some examples are listed below (2-71).

- | | | |
|--------|-------------|-------------------------------------|
| (2-71) | para-tuk-u | 'to be sprinkled' |
| | peta-tuk-u | 'to be sticky' |
| | bara-tuk-u | 'to be disorganized, to be diffuse' |
| | basa-tuk-u | 'to be excessively dry' |
| | hura-tuk-u | 'to be shaky' |
| | huwa-tuk-u | 'to behave frivorously' |
| | tira-tuk-u | 'to flicker' |
| | tyara-tuk-u | 'to be flashy' |

dabu-tuk-u	'to be overabundant'
kira-tuk-u	'to glitter'
gira-tuk-u	'to glare'

Note that initial /p/ which is characterisitic of mimetic words appears above. The suffix /-tuk-/ is the only derivational suffix that is affixed to p-initial mimetic roots. With other suffixes, we see /h/, a reflex of /p/, in initial position.

Another suffix that clearly derives verbs from mimetic words is /-mek-/. In contrast to /-tuk-/, /-mek-/ means 'to fashionably/appropriately/elegantly exhibit the mild feature of (the condition expressed by the mimetic words),' as in the following.

(2-72)	hisi-mek-u	'to be jammed with people (because of the popularity)'
	toki-mek-u	'(the heart) throbs with joy'
	doyo-mek-u	'to stir (with applause, etc.)'
	zawa-mek-u	'to stir (with applause, admiration)'
	kira-mek-u	'to glimmer'
	yoro-mek-u	'to reel elegantly'

This suffix is used with nouns, too, as in the following.

(2-73)	<u>aki</u> -mek-u	'to look like <u>fall</u> '
	<u>haru</u> -mek-u	'to look like <u>spring</u> '
	<u>toki</u> -mek-u	'to be <u>timely</u> , to be in power'

The contrast between /-tuk-/ and /-mek-/ in terms of inappropriateness/appropriateness is clear in the following examples.

- (2-74) a. Hosi ga kira-mek-u.
star Sbj
'The stars twinkle.'
- b. Yasude no soosyokuhiN ga kira-tuk-u.
cheap Gen accessory Sbj
'Cheap accessories glitter.'

- (2-75) a. Omoigakenai eNsyutu ni zyoonai wa
unexpected stage effect to theater Top

zawa-mei-ta.

'The unexpected stage effect caused a stir among the audience.'

- b. Maiku no kosyoo de zyoonai wa
microphone Gen trouble with audience Top

itizi zawa-tui-ta.
temporarily

'For a short time, there was a general stir in the audience at the trouble of the microphone.'

In the above, (2-74a) and (2-75a) concern something esthetic, and /-mek-/ is used there. In (2-74b) and (2-75b), inappropriate events are dealt with, and /-tuk-/ is used.

2.5.4.2. /-ke-/ and /-kas-/

Derivational suffixes /-ke-/ and /-kas-/ also appear quite often with mimetic words. The meaning of /-ke-/ is something like 'to turn to (the state expressed by the mimetic word).'

(2-76)	boya-ke-ru	'to become blurred'
	huya-ke-ru	'to swell up, to become sodden'
	toro-ke-ru	'to melt'
	niya-ke-ru	'to get foppish'
	yoro-ke-ru	'to reel'
	izi-ke-ru	'to become crooked'
	dara-ke-ru	'to become lazy'

The suffix /-kas-/ means 'to turn X into (the condition expressed by the mimetic word).'

 It is a causative suffix.

(2-77)	boya-kas-u	'to blur'
	huya-kas-u	'to steep'

2.5.4.3. /-e/ and /-as-/

The contrast between /-ke-/ and /-kas-/ is parallel to the contrast between /-e-/ and /-as-/. The meaning of /-e-/ is 'to do (the action/movement indicated by the mimetic word),' while the meaning of /-as-/ is 'to cause X to do (the action indicated by the mimetic word).'

(2-78)	a.	yur-e-ru	(cf. yura-yura)	'to sway'
	b.	yur-as-u	(cf. yura-yura)	'to rock'
(2-79)	a.	tar-e-ru	(cf. tara-tara)	'to droop'
	b.	tar-as-u	(cf. tara-tara)	'to hang'

2.5.4.4. /-ge-/ and /-gas-/

The voiced variants of /-ke-/ and /-kas-/ are also used with mimetic words, as in (2-80a, b) below. Another suffix /-gar-/ is similar to /-ge-/ and is used as in (2-81c).

(2-80)	a.	koro-ge-ru	'to tumble (intr.)'
	b.	koro-gas-u	'to tumble (tr.)'
	c.	koro-gar-u	'to tumble (intr.)'

2.5.4.5. /-k-/ and /-g-/

Derivational suffixes /-k-/ and /-g-/ appear in the following forms. Their meaning is 'to do the action/movement indicated by the mimetic word.'

(2-81)	hata-k-u	(cf. pata-pata)	'to dust, to beat'
	hazi-k-u	(cf. pati-pati)	'to fillip, to snap'
	yura-g-u	(cf. yura-yura)	'to sway'

soyo-g-u	(cf. soyo-soyo)	'to rustle in the wind'
sawa-g-u	(cf. sawa-sawa)	'to clamor'

2.5.4.6. /-mar-/, /-m-/, and /-me-/

The suffix /-mar-/ derives intransitive verbs; its meaning is 'to become (the condition indicated by the mimetic word).'

(2-82)	yuru-mar-u	(cf. yuru-yuru)	'to become loose'
	kuru-mar-u	(cf. kuru-kuru)	'to be rolled up'

The suffix /-me-/ derives transitive verbs; its meaning is 'to turn X to (the condition indicated by the mimetic word).'

(2-83)	yuru-me-ru	(cf. yuru-yuru)	'to loosen'
	kuru-me-ru	(cf. kuru-kuru)	'to wrap up'
	heQko-me-ru	(cf. peko-peko)	'to flatten'

The suffix /-m-/ derives both intransitive and transitive verbs.

(2-84)	yuru-m-u	(cf. yuru-yuru)	'to become loose (intr.)'
	muku-m-u	(cf. muku-muku)	'to swell (intr.)'
	kura-m-u	(cf. kura-kura)	'to become dizzy (intr.)'
	kuru-m-u	(cf. kuru-kuru)	'to roll up (tr.)'

2.5.4.7. Miscellaneous Derivations of Verbs

The suffix /-b-/ derives one mimetic verb.

(2-85)	koro-b-u	(cf. koro-koro)	'to tumble (intr.)'
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The following verbs also may be considered to include sound-symbolic associations.

(2-86)	mus-u	(cf. musi-musi)	'to be sultry'
	kosur-u	(cf. kosi-kosi)	'to rub'
	sur-u	(cf. sura-sura)	'to rub'

The resemblances may be coincidental in these cases, however. In any case the abundance of clearly mimetic verbs is striking, though not suprising, considering the close relationship between the verbs and the mimetic words in Japanese.

By contrast, very few adjectives can be considered to be of direct mimetic origin. And those that are tied to mimetic roots are neologisms or slang words, as below.

(2-87)	noroi	(cf. noro-noro)	'slow'
	tyoro-i	(cf. tyoro-tyoro)	'easy'
	toro-i	(cf. toro-toro)	'slow, stupid'
	boro-i	(cf. boro-boro)	'easy'

CHAPTER 3 THE ICONIC CONTINUUM IN MIMETIC WORDS

3.1. Accent and Iconicity in Mimetic Adverbs

It is best to treat one phono-semantic correlation in mimetic adverbs separately before we embark on the question of "sound symbolism" as we generally understand it. This is the role of accent in mimetic adverbs. The following discussion will demonstrate that the accentual classification of mimetic adverbs is correlated with the continuum of iconicity.


For the purpose of this discussion, we will look at p-initial monosyllabic mimetic adverbs. The actual p-initial forms which are used for this analysis are listed in (3-1) below. Three prosodic and three non-prosodic criteria classify the forms into four classes as we will see below. Phonemic pitch fall, or word accent, is marked by /'; it is seen in the last class. Intonational pitch fall is marked by /'/; it is seen in the first two and the last class. This list, for one thing, is provided to show the possible range of variation for each group of monosyllabic mimetic adverbs which share a common initial consonant. Since p-initial mimetic adverbs are the most productive category, comparisons with other monosyllabic mimetic adverbs prove that the list almost exhausts all the possibilities for monosyllabic mimetic roots.

(3-1)



Class I: [to]

piN'' to	piiN'' to	piN piN'' to	piiN piiN'' to
paN'' to	paaN'' to	paN paN'' to	paaN paaN'' to
poN'' to	pooN'' to	poN poN'' to	pooN pooN'' to
puN'' to	puuN'' to	?puN puN'' to	?puuN puuN'' to
pyoN'' to	pyooN'' to	pyoN pyoN'' to	pyonN pyooN'' to
piQ'' to	piiQ'' to	piQ piQ'' to	piiQ piiQ'' to


peQ" to	peeQ" to	peQ peQ" to	peeQ peeQ" to
paQ" to	paaQ" to	paQ paQ" to	paaQ paaQ" to
poQ" to	pooQ" to	poQ poQ" to	pooQ pooQ" to
puQ" to	puuQ" to	puQ puQ" to	puuQ puuQ" to
pyuQ" to	pyuuQ" to	pyuQ pyuQ" to	pyuuQ pyuuQ" to
	poiQ" to		poiQ poiQ" to
	puiQ" to		puiQ puiQ" to
	pyoiQ" to		pyoiQ pyoiQ" to
	pīi" to		pīi pīi" to
	poi" to		poi poi" to
	pui" to		pui pui" to
	pyoi" to		pyoi pyoi" to

Class II: [ to]

pi-piN" to	pi-pi-piN" to
pa-paN" to	pa-pa-paN" to
po-poN" to	po-po-poN" to
pyo-pyoN" to	pyo-pyo-pyoN" to
pi-piQ" to	pi-pi-piQ" to
pe-peQ" to	pe-pe-peQ" to
pa-paQ" to	pa-pa-paQ" to
po-poQ" to	po-po-poQ" to
pu-puQ" to	pu-pu-puQ" to
pyu-pyuQ" to	pyu-pyu-pyuQ" to

Class III: [ to or  to]

piN to	pīiN to
paN to	pāaN to
poN to	pōoN to
puN to	pūuN to
pyoN to	pyōoN to
piQ to	pīiQ to
paQ to	pāaQ to
poQ to	pōoQ to
puQ to	pūuQ to
pyuQ to	pyūuQ to

Class IV: [ to]

pi'N" to	pi'N-piN(" to)
pa'N" to	pa'N-paN(" to)
po'N" to	po'N-poN(" to)
pu'N" to	pu'N-puN(" to)
pyo'N" to	pyo'N-pyoN(" to)
	pi'Q-pi" to
	pa'Q-pa" to
	po'Q-po" to
	pu'Q-pu" to
	pyu'Q-pyu" to
	pi'i-pīi(" to)
	pa'a-pāa(" to)
	pyu'u-pyūu(" to)
	po'i-poi(" to)
pi'i" to	
pa'a" to	
pyu'u" to	
po'i" to	

pu'i" to
pyo'i" to

?pu'i-pui(" to)
pyo'i-pyoi(" to)

The criteria for classifying the above forms into four classes are (1) the presence or absence of phonemic accent, (2) the presence or absence of prosodic pitch fall before the quotative particle to, (3) the presence or absence of initial pitch rise, (4) the possibility of lengthening the vowel, (5) the optionality of the particle to, and (6) the possibility of freely expanding forms. The table below summarizes the characteristics of each class using both accentual and non-accentual criteria.

Table 3-1: Summary of Accentual Classes

	phonemic accent	pitch fall before <u>to</u>	initial pitch rise	expandability	vowel length	<u>to</u>
I	no	yes	no	yes	long/short	obligatory
II	no	yes	yes	yes	long/short	obligatory
III	no	no	yes	no	long/short	obligatory
IV	yes	yes	yes	no	short only	obligatory/ optional

Class I and Class II forms exhibit a marked pitch fall between the last long syllable of the mimetic forms and the particle of quotation to or te. Note that this type of accent is the one used for imitative quotation of animal and other sounds which do not fit in the general description of the mimetic system, as in the following.

(3-2)	doQbooN" to	[doQbooN' to]	(sound of plunging into water)
	weeN" to	[weeN' to]	(wailing)
	koke'koQkoo" to	[kokekoQkoo' to]	'cockadoodledoo'

- b. $\overline{[\text{pi-pi-pi-piN to}]}$
(Class II)

used, for example, to
describe the action of
striking a string
hurriedly several times

The absence of pitch rise in an unaccented initial syllable itself is not unique to the Class I mimetic adverbs. In the other strata of Japanese, also, we see the same process. That is, if an unaccented initial syllable contains the syllable-final nasal /N/ or a long vowel, it is often realized with a flat high pitch without a rise. On the other hand, if the initial syllable contains only one mora /(C)V/ or contains syllable-final /Q/ instead of /N/, a rise follows that syllable. See the following.

- (3-6) a. $\overline{[\text{doN.kaN}]} \sim \overline{[\text{doN.kaN}]}$ 'numb'
 $\overline{[\text{too.ge}]} \sim \overline{[\text{too.ge}]}$ 'peak, pass'
b. $\overline{[\text{o.riN.piQ.ku}]}$ 'Olympic games'
 $\overline{[\text{aQ.pa.ku}]}$ 'pressure'

There is a difference between (3-5a) and (3-6a) above, however. In (3-5a), no rise appears, however carefully one might articulate the form. In (3-6a), on the other hand, the initial rise appears when it is carefully articulated.

The above difference is considered to arise from the difference in the unit we are dealing with. In (3-5b), (3-6a), and (3-6b), each form is accentually a single unit, a word, each having maximally one pitch fall. In (3-5a), on the other hand, the mimetic portion is considered to consist of a number of monosyllabic words, no one of which is subordinated to any other. If an initial pitch rise were permitted for each unit of Class I forms, such inadmissible strings as $*[\overline{\text{piN to}}]$ or $*[\overline{\text{piN}} \overline{\text{piN to}}]$, which have a rise and a fall in a single syllable, would be produced.

The supporting evidence for this is the parallellism between monosyllabic and bisyllabic forms, as in (3-7) below.

- (3-7) a. piN'' to [piN to]
 b. piN piN'' to [piN piN to]
 c. pataN'' to [pataN to]
 d. pataN'' pataN'' to [pataN pataN to]

The forms in (3-7a) and (3-7b) above are considered to be underlyingly parallel to (3-7c) and (3-7d); *[pataN pataN to] does not exist, and each is the most iconic form in its class as we shall see later.

The treatment of Class I forms as consisting of multiple words explains the irregularity observed in (3-8) below, too. In Class I, a voiced geminate cluster [bb] (/Qb/) is allowed, violating the predominant constraint on Japanese geminate clusters; it is not allowed in Class IV.

- (3-8)
- | | | |
|----------|--------------------------------|---------------------------------|
| Class I | paQ paQ'' to
paN paN'' to | baQ baQ'' to
baN baN'' to |
| Class IV | pa'Q-pa'' to
pa'N-paN(' to) | *ba'Q-ba'' to
ba'N-baN(' to) |

Non-prosodic criteria also set apart the Class I forms from the other classes. Class I forms are expandable; the variations are virtually infinite. The vowels can be lengthened. The particle of quotation, to or te, is obligatory.

As explained above, Class II forms also have the pitch fall before the particle of quotation, but they consist of only one accentual unit followed by to. Class II forms exhibit initial pitch rise, and they are partially reduplicated forms. The vowel of the last unit can be either short or long. The particle of quotation again is obligatory. Class I and Class II are very similar.

Class III and Class IV monosyllabic forms differ from the above and from each other as follows.

Class III forms are accentless; there is no phonemic pitch fall. Moreover there is no pitch fall before to; the mimetic form and the quotative particle to form an inseparable word

unit. In this respect, they are different from Class I and Class II forms. Like Class II forms, however, the accentless long syllable of these mimetic forms may exhibit a pitch rise. When articulated carefully, the unaccented initial syllable of a Class III form is accompanied by a pitch rise between the first and the second mora.

Class III forms do not contain reduplicated, triplicated, or otherwise expanded forms. Unlike Class I and Class II forms, their expandability is limited. The vowels of Class III forms, however, can be short or long like Class I and Class II forms. Also, like Class I and II, tɔ is obligatory.

Class IV forms, on the other hand, are accented on the first syllable. This class alone exhibits phonemic pitch fall.

Class IV forms are fixed in shape: their vowels are always short, and there are only two options of expansion, unreduplicated or reduplicated. Forms such as /*pi'iN-piN'' to/ and /*pi'N-piN-piN'' to/ do not exist. As for the optionality of tɔ, there are two subclasses. With fully reduplicated forms such as /pi'N-piN/ and /pi'i-pii/, tɔ is optional. In other forms, tɔ is obligatory.

We now clearly see a dichotomy between the more dynamic and flexible mimetic adverbs of Class I and Class II and the less flexible and fixed mimetic adverbs of Class III and Class IV. In Class I and Class II, various mechanisms mark off the mimetic forms from the rest of the sentence. At the other extreme, the mimetic elements merge with the rest of the sentence because of the omission of tɔ or because of the accentual integration of tɔ with the mimetic forms.

The above formal characterization of the contrast makes sense in view of the functional and semantic differences of the classes. Class I and Class II appear where a more dramatic and sound-symbolic effect is expected. Class IV, on the other hand, typically appears in idiomatic expressions, as in the following.

(3-9)	do'N-doN	'rapidly'
	ho'i-hoi	'without thinking carefully'
	pu'N-puN suru	'to get angry'
	mu'N-muN suru	'to be sultry'
	tu'N-tuN suru	'to be touchy/cross'
	pi'N-piN suru	'to be energetic'
	pi'i-pii suru	'to be distressed without money'

All of the above expressions retain a substantial trace of sound-symbolic meanings that allows one to tie them with their Class I counterparts. Nevertheless, their meaning are considerably narrower than or shifted from those of their Class I counterparts so that they cannot be used in the same context. See the following, for example.

- (3-10) a. Do'N-doN de -te ku -ru.
exit-Ger come-Pres
'They come out rapidly in a large quantity.'
- b. DoN doN'' to de -te ku -ru.
exit-Ger come-Pres
'They come out with drum-like sounds.'
- (3-11) a. Pi'N-piN si-te i -ru.
do-Ger Cont-Pres
'She is healthy [for her age].'
- b. ?PiN piN'' to si-te i -ru.
do-Ger Cont-Pres
'She is plucking the string twice (?).'

The foregoing statement is not intended to mean that all Class I and Class IV counterparts are as different from each other as above (3-10) and (3-11). On the contrary, most of Class I and Class IV counterparts are interchangeable with only a slight difference in their nuances. For example, see the following.

- (3-12) a. paN paN'' to tataku 'to beat flatly and vigorously
twice'
- b. pa'N-paN tataku 'to beat flatly and vigorously
continuously'

What should be emphasized here is rather that, if there is a substantial difference, it is the Class IV forms that carry idiomatic and less sound-symbolic meanings.

The preceding discussion is based upon a contrast between reduplicative adverbs of Class I and Class IV. The same can be said of the contrast between Class I and Class III non-reduplicative adverbs to a large extent, although the situation is a little more complex in this case as we shall see later in §3.3. See the following for the moment.

- (3-13) a. ZaQ to mitumoQ-ta kagiri de wa ni -toN no
roughly estimate-Past extent Adv Top two-ton Gen
suna ga hituyoo des -u.
sand Sbj need CopPol-Pres
'Roughly estimated, we need two tons of sand.'
- b. Sono syuNkaN zaQ'' to suna ga haiQ-te ki -ta.
that moment sand Sbj enter-Ger come-Past
'That moment, sand rushed in with a gushing noise.'
- (3-14) a. Kono heya no hoo ga guQ to akarui
this room Gen side Sbj considerably bright
des -u.
CopPol-Pres
'This room is considerably better-lighted.'
- b. Sono syuNkaN watasi wa haNdoru o
that instant I Top steering wheel Obj
guQ'' to nigirisime-masi-ta.
grasp -Pol -Past
'That instant, I tightly grasped on to the steering
wheel.'

- (3-15) a. Syakai -too wa koNkai no seNkyo de mo
 socialist-party Top this time Gen election in also
paQ to si -mas-eN desi -ta.
 be conspicuous-Pol -Neg CopPol-Past

'The Socialist Party didn't do well in this election,
 either.'

- b. TotuzeN biQkuri-bako no huta ga paQ" to hirai-ta.
 suddenly surprise-box Gen lid Sbj open-Past

'Suddenly, the lid of the Jack-in-the-box sprang widely
 open.'

The above demonstrates that the more idiomatic, less sound-symbolic uses of non-reduplicative mimetic forms call for the Class III accent pattern. Note that it is far easier to define the meanings of the mimetic forms in (3-13a), (3-14a) and (3-15a) than those in (3-13b), (3-14b) and (3-15b); the former are idiomatic and semantically more restricted than the latter.

Even when we cannot perceive such a clear-cut difference as above, semantic differences do exist. Hearing a request Yuka o do'N-doN to humi-narasi-te kudasai 'Please stamp on the floor like do'N-doN,' a speaker of a Kantoo dialect stamped on the floor several times (more than twice) continuously. When she heard a request Yuka o doN doN" to humi-narasi-te kudasai 'Please stamp on the floor like doN doN,' she responded by stamping on the floor twice. Thus, the meaning of reduplication in Class IV is 'plurality or continuity at a relatively rapid speed,' while the meaning of reduplication in Class I is 'twice.'

We may say that we see a continuum of 'iconicity' in the continuum of Class I to Class IV. Using specific forms, we will see how a word gets conventionalized and becomes less iconic in the transition from Class I to Class III or Class IV. See the following.

- (3-16) a. taiko o doN doN'' to tataku (Class I)
 drum Obj hit
 'to hit a drum twice vigorously'
- b. taiko o doN-doN to tataku (Class IV with to)
 drum Obj hit
 'to hit a drum several times vigorously'
- c. taiko o doN-doN tataku (Class IV without to)
 drum Obj hit
 'to hit a drum several times vigorously'
- d. ame ga doN-doN huQ-te kuru (Class IV without to)
 rain Sbj fall-Ger come
 'the rain comes down vigorously in a large quantity'
- e. *ame ga doN doN'' to huQ-te kuru (Class I)
 rain Sbj fall-Ger

In the above, (3-16a) alone has the meaning of 'twice,' which is directly related to the reduplication of the mimetic element. Also, as we shall see later, the meaning of the mimetic adverbs in (3-16a) above is tied to the physical aspect of the drum which here is large and sturdy in construction. Note that, as we go down the above examples, the meaning of 'twice' is first lost, followed by the meaning of 'hitting a flat thick non-metallic surface.' One may suspect that (3-16d) contains the latter meaning, but the fact that (3-16e) is ungrammatical suggests that this is not the case. Likewise, in the following example, the use of the mimetic adverb is clearly idiomatic and restricted sound symbolically. Here again, the Class I counterpart cannot be used.

- (3-17) a. tenki ga doN-doN kawaru (Class IV without to)
 weather Sbj change
 'the weather changes rapidly (from one weather to another)'
- b. *tenki ga doN doN'' to kawaru (Class I to)
 weather Sbj change

There is a cooccurrence restriction on one segmental feature. Diphthongs do not appear in Class III in (3-1). This is apparently due to their strong iconicity.

So far, we have dealt with the accent of monosyllabic mimetic adverbs. We can identify parallel phenomena in bisyllabic mimetic adverbs. The following are the major types of bisyllabic mimetic adverbs. The first three classes are parallel. Class III is missing. Class V is an additional class.

(3-18)

Class I:	(y-)CVCV(V)Q" to	example pataQ" to patyaQ" to petaaQ" to petyaaQ" to pataN" to petyaN" to poQtoN" to poQtyaN" to pataaN" to pasyaaN" to paQtaaN" to poQtyaaN" to
	(y-)CV(Q)CV(V)N" to	pataQ pataq" to pataN pataN" to
	expansion of above	
Class II:	(y-)CVCV-CVCVQ" to	pata-pataQ" to pasya-pasyaQ" to
	(y-)CVCV-CVCVN" to	poto-potoN" to poro-poroN" to
	expansion of above	pota-pota-potaQ" to
Class IV:	(y-)CV'CV" to	pa'ti" to pi'ka" to
	(y-)CV'CVN" to	pata'N" to pati'N" to
	(y-)CV'CV-CVCV(" to)	pa'ta-pata(" to) pa'tya-patya(" to)
	(y-)CV'CVN-CVCVN(" to)	pata'N-pataN(" to) poka'N-pokaN(" to)
Class V:	(y-)CV(Q)CV'ri(" to)	paku'ri(" to) pisyari(" to) piQta'ri(" to)

The parallelism of the above classes to the classes of monosyllabic mimetic adverbs is clear. Class I of bisyllabic mimetic adverbs is comparable to Class I of monosyllabic mimetic adverbs in terms of the position of the accent nucleus, the restriction on the vowel

length, the obligatoriness of to, and the expandability of the forms. A class comparable to Class III of monosyllabic mimetic adverbs is missing: the accentless pattern does not exist for bisyllabic mimetic adverbs. However, Class V is unique to bisyllabic mimetic adverbs.

The contexts where each of the bisyllabic classes is used are also parallel to those where a comparable class in monosyllabic mimetic adverbs is used. Class I of bisyllabic mimetic adverbs is used in the most dramatic contexts, while Classes IV and V are used in the least dramatic contexts.

3.2. The Iconic Continuum

Mimetic words in general form a continuum between those categories that are more typically mimetic and those that are less so.

For example, mimetic nominal adjectives are less mimetic than mimetic adverbs. Recall that reduplicative nominal adjectives, which constitute the majority of mimetic nominal adjectives, lack any pitch fall, intonational or mimetic, just like Class III monosyllabic mimetic adverbs. Besides, their morphological variations are limited, as we saw in §2.3.2. Moreover, in §2.4.5, we saw that mimetic nominal adjectives are semantically tied to more abstract qualities than mimetic D-verbs which are based on mimetic adverbs.

In turn, bisyllabic mimetic roots are less mimetic than monosyllabic mimetic roots, and the majority of mimetic nominal adjectives are based on bisyllabic mimetic roots. Also, in §2.5.4.1, we saw that the derivational suffixes /-tuk-/ and /-mek-/ are suffixed only to bisyllabic mimetic roots.

Also, p-initial mimetic words are more typically mimetic than other forms, as we shall discuss in the last part of this section. The phenomenon of the accentual continuum observed so far is part of this larger problem.

While the connection between the iconic continuum and accent has been overlooked in the past, the idea of an iconic continuum is not entirely new. The traditional dichotomy between giongo 'sound-mimicking words' and gitaigo 'mode-mimicking words,' for instance, reflects the two ends of this mimetic continuum. And such classifications have been used to describe or account for certain aspects of the mimetic system. For instance, Inaba (1972) and Yamaguchi (1973) use these concepts to explain some historical facts about mimetic words.

According to Inaba, from Old Japanese through Modern Japanese, the second-syllable vowels in bisyllabic giseego 'voice-mimicking words' are always /i, u/, while the second-syllable vowels in bisyllabic gitaigo 'mode-mimicking words' are predominantly /a, o/. Also, those having /i, u/ as the second-syllable vowel, whether 'voice-mimicking' or 'mode-mimicking,' are rarely suffixable with derivational suffixes. Within 'voice-mimicking words,' those having the same vowels in the first and the second syllable are more likely to be suffixed with derivational suffixes than those having different vowels in the first and the second syllable. Verbal suffixes -meku and -tuku are suffixed to giseego as well as gitaigo, while nominal-adjectival suffixes -ka, -yaka, and -raka are suffixed only to gitaigo.

Yamaguchi, on the other hand, utilizes the dichotomy between giongo 'sound-mimicking words' (the more iconic) and gitaigo 'mode-mimicking words' (the less iconic) to identify the pronunciation of some mimetic words in Middle-Old Japanese.

According to Yamaguchi, bisyllabic mimetic roots in Middle-Old Japanese in which both C_1 and C_2 are obstruents are classified into the following four types.

- (3-19) a. $C_1 = [+voice]; \quad C_2 = [-voice]$
 b. $C_1 = [+voice]; \quad C_2 = [+voice]$
 c. $C_1 = [-voice]; \quad C_2 = [-voice]$
 d. $C_1 = [-voice]; \quad C_2 = [+voice]$

Of these, Yamaguchi states that the first category largely consisted of giongo and the last largely of gitaigo; the second and the third category consisted of both giongo and gitaigo. In other words, at the stage of Middle-Old Japanese, the first category was most iconic, while the last was least iconic. In agreement with these facts, the first category was absent from the ordinary stratum of Old Japanese.

The situation has not changed much to the present. The last category above is still the least conventional. A change has occurred at the other end, however, according to Yamaguchi; the first category in contemporary Japanese contains a considerable number of gitaigo.

In addition, Yamaguchi notes that, while the weakening of intervocalic /h/ to /w/ occurred in gitaigo, as in sawa-sawa (<saha-saha) and tawa-tawa (<taha-taha), and in the ordinary stratum, as in kowai (<kohaki), intervocalic /h/ was unaffected by the general process in such 'sound-mimicking words' as gohōN (sound of coughing).

At various places, I have repeated that p-initial mimetic adverbs are most typically mimetic. The historical status of p-initial forms, however, is problematic. Yamaguchi (1973) and Suzuki (1965) take the view that p-initial mimetic forms did not exist in Japanese until the stage of Recent Japanese (1603-1867). Their claim is based upon the survey of written documents including Jesuit grammars and writings in which Japanese was transliterated using the Portugese writing conventions. The possibility remains, however, that the absence of /p/ in written documents was caused by its extreme expressiveness, unfit for the erudite nature of literature up to this time. Perhaps the

ensuing popularization of literature in the Edo period (1603-1867) allowed the inclusion of the more expressive forms previously looked down upon for literary purposes.

It is a standard hypothesis in Japanese linguistics, first claimed by Kazutoshi Ueda, that the ordinary stratum of Proto-Japanese probably had /p/ in initial as well as medial position (Hashimoto 1950). The hypothesized disappearance of /p/ is explained as a case of weakening. In view of this hypothesis and the concept of iconic continuum, it seems more natural to hypothesize that /p/ in initial position existed in Proto-Japanese mimetic words, too, as part of a symmetrical structure and that it was later replaced only in the non-iconic part of the language as a result of a general phonetic change of weakening ($p > \text{p} > h$).

In any case, the synchronic status of p-initial mimetic forms is clear-cut. Qualitatively and quantitatively, they are central to the mimetic system in contemporary Standard Japanese. Features that are sporadic in the mimetic system in general are absent in p-mimetic forms. Voiced obstruents and nasals, which are rare as the second-syllable consonant, are entirely absent from this position in p-initial mimetic words. Consequently, the sequence /NC/, where /C/ is a voiced obstruent or a nasal, is lacking in p-initial mimetic forms. The prosodic features of p-initial forms, as we have seen in §3.1, are also typically mimetic. Irregular patterns, such as the one seen in the marginally mimetic form /hono'-bono/ 'faintly light,' are never used with p-initial forms. Also, sequential voicing of the initial obstruent of the second element, as in /hono'-bono/, is non-existent in p-initial forms. The derivational suffix /-tuku/, which is typically used with mimetic words, is suffixed to p-initial mimetic forms, but another derivational suffix /-meku/, which is suffixable to non-mimetic nouns such as haru 'spring' and aki 'autumn,' is not used with p-initial mimetic forms.

3.3. Accent of Long Vowels

One problem has not been settled for the unreduplicative forms of Class III monosyllabic words. The uses of Class III (unaccented) unreduplicative adverbs with long vowels cannot be accounted for simply as a case of conventionalization. Unreduplicative mimetic adverbs with long vowels carry the Class III accent pattern considerably more frequently than those with short vowels in otherwise identical contexts. Apparent exceptions are those with /ee/ such as peeQ to (spitting) and purely onomatopoetic forms such as mo(')o to (cow), miiN to (locust), riiN to (chime), and nya(')a to (cat); these never occur with the Class III accent pattern.

The result of a pilot study showed that 56% of the long vowels in such forms were unaccented (i.e., Class III), while 24% of the short vowels were unaccented. A follow-up experiment using controlled pairs of sentences consistently agreed with this result.

The experiment was carried out with two speakers of Kantoo dialects. Neither of them was a subject in the pilot study and neither of them had any linguistic background. Twenty-two pairs of otherwise identical sentences using unreduplicative mimetic adverbs with long and short vowels were prepared and presented to them in a randomized list. They then were requested to read the list aloud twice at normal speed, and their pronunciations were tape-recorded and transcribed later. Appendix D lists all the sentence pairs used in this experiment. A sample pair is given below. Because the Japanese writing system does not mark accent, the subjects could accentuate the test items in any way they liked.

- (3-20) a. Huta o toQ -tara arukooru no nioi ga puN to si-ta.
 lid Obj take-Past alcohol Gen smell Sbj do-Past
 'When I took off the lid, I smelled a strong smell of
 alcohol.'

- b. Huta o toQ -tara arukooru no nioi ga puuN to si-ta.
 lid Obj take-Past alcohol Gen smell Sbj do-Past

'When I took off the lid, I smelled a very strong smell
 of alcohol.'

The following results were obtained. (Incorrectly read mimetic forms were omitted from the calculation.)

Table 3-2: Percentage of Accentless (= Class III) Forms

		short vowels	long vowels
Speaker 1	1st time	6/22=27.3%	11/22=50%
	2nd time	7/22=31.8%	12/22=54.5%
Speaker 2	1st time	4/21=19%	8/19=42%
	2nd time	4/21=19%	10/20=50%

The results show that, for both speakers, twice as many unreduplicative mimetic adverbs with long vowels carry the Class III accent (i.e. are accentless) as those with short vowels. In other words, piiN to for instance is more likely to be pronounced as [piiN to] (as opposed to [piiN̄ to]) than piN to is as [piN to]. It is not clear whether it is phonologically caused or whether it is related to the semantic role of vowel lengthening. Interestingly, the accent patterns were not fixed lexically. Nor did the two speakers show any consistent agreement.

In any case, given the general correlation between the iconicity scale and accentual patterns, when two forms are contrasted in this thesis, they will be drawn from the same accent classes wherever possible.

CHAPTER 4 SOUND SYMBOLISM OF MONOSYLLABIC MIMETIC ADVERBS

4.1. Introduction

In this chapter, I will describe the sound symbolism of monosyllabic mimetic adverbs. This will clarify most of the meanings that are associated with various modifications of the roots in the sound-symbolic system in general. It will also clarify the meanings of the individual consonants and vowels as they appear in monosyllabic roots.

Most of the examples for this analysis are p-initial mimetic adverbs. This is because, as we have seen in §3.2, p-initial mimetic adverbs are most characteristically mimetic. Forms starting with other consonants will supplement the analysis.

The types of mono-syllabic mimetic forms that are dealt with here are mimetic adverbs of the shapes, C(y)V V, C(y)V(V)N, C(y)V(V)Q and their reduplications. C stands for /p, h, b, t, d, k, g, s, z, n, m, y, w, (Ø)/. V stands for /i, e, a, o, u/. V V stands for either long vowels /ii, ee, aa, oo, uu/ or diphthongs /ai, oi, ui/. /N/ stands for the syllable-final nasal that constitutes a full mora. /Q/ stands for the first half of geminate clusters, and it also constitutes a full mora.

The semantic domains and features involved in each constituent part of the forms are briefly summarized below. This is provided as an outline for the more detailed description that follows. For a fuller summary, see §4.1.1. The numbers indicate the sections where the features are dealt with. Note that the features in (4-1) are mostly listed from the first element in the sequence to the last. In the analysis following, however, the order of presentation is reversed in order to deal with the features in ascending order of complexity.

(4-1) Initial consonantal element: Type of movement. (§4.7, §4.8, §4.9)

Point of articulation: Surface structure on contact. (§4.9)

Manner: Manner. (§4.9)

Voicing: Quality of surface. (§4.8)

Palatalization: Energy and childishness. (§4.7)

Vowels: Size and shape of movement. (§4.6)

Diphthongization: Circular movement. (§4.5)

Vowel length: Length. (§4.4)

Final consonants: Final aspect. (§4.3)

Repetition: Phase. (§4.2)

4.2. Repetition

4.2.1. Reduplicatives vs. Non-Reduplicatives

First, we will look at the contrast between a single base form, a root plus modifications, and a complete reduplicative: e.g., /piN'/ vs. /piN-piN'/; /piiN'/ vs. /piiN-piiN'/.

Generally speaking, the single form indicates that the action takes place once, while the reduplicative form indicates repeated or continuous actions. See the following example.

(4-2) a. Teeburu-kurosu o piN to hiQpaQ-te hosi-ta.
table -cloth Obj pull -and dry -Past

'I carefully pulled the table cloth into shape and hung it on a line.'

- b. Teeburu-kurosu o piN piN to hiQpaQ-te hosi-ta.
table -cloth Obj pull -and dry -Past

'I carefully pulled the table cloth into shape several times and hung it on a line.'

- (4-3) a. Tukue no ue o paN to hoN de tatai-te kyoo wa
table Gen top Obj book by hit -and today Top
kore de osimai to iQ -ta.
this with end Quot say-Past
'Slapping the book down on the desk, she said, "So much for today."'

- b. Tukue no ue o paN paN to hoN de tatai-te
table Gen top Obj book with hit -and
kyoo wa kore de osimai to iQ -ta.
today Top this with end Quot say-Past
'Slapping the book down on the desk several times, she said, "So much for today."'

- (4-4) a. Okyaku ga de -ta to omoQ -tara Yasue-saN
customer Sbj exit-Past Quot think-when Yasue-Hon
tara sio o paQ to doa no hoo e
Top salt Obj door Gen direction to
nage -tuke -ta no.
throw-attach-Past Atten
'As soon as she saw the [nasty] customers leave,
Yasue threw a dash of salt toward the door [to purify the place].'

- b. Okyaku ga de -ta to omoQ -tara Yasue-saN
customer Sbj exit-Past Quot think-when Yasue-Hon

tara sio o paQ paQ to doa no hoo e
Top salt Obj door Gen direction to

nage -tuke -ta no.
throw-attach-Past Atten

'As soon as she saw the [nasty] customers leave,

Yasue threw dashes of salt toward the door [to purify
the place].'

In the examples (4-2a), (4-3a) and (4-4a) above, the use of a single mimetic base indicates that the action took place once. In (4-2b), (4-3b) and (4-4b), on the other hand, the use of a reduplicative form indicates that the action took place more than once.

In the above examples, the simple base form and the reduplicative form can appear contrastively in an identical context. In some other sentences, however, they cannot be used in this fashion; only one or the other is allowed in a certain context. See the following.

- (4-5) a. PiN to har -are -ta harigane ni zaimoku
stretch-Pass-Past wire to log

o sibari-tuke -te sita ni orosu no
Obj tie -attach-and below to lower Comp

des -u.
CopPol-Pres

'They tie the logs to the tightly stretched wire and
lower them down.'

- b. *PiN piN to/*piN-piN to har-are-ta harigane ni
zaimoku o sibari-tuke-te sita ni orosu no des-u.

- (4-6) a. Ano ko tui saikiN inaka kara poQ to
 that child merely recently country from
 de -te ki -ta N des -u.
 come out-and come-Past Comp CopPol-Pres
 'That girl arrived from the countryside just recently
looking unprepared. = She came right out of the sticks.'
- b. *Ano ko tui saikiN inaka kara poQ poQ to de-te
 ki-ta N des-u.

In the above (4-5) and (4-6), the reduplicative forms are unacceptable, because the context makes it clear that there is a single event. For (4-5), it is irrelevant whether the wire was pulled once or twice; rather the focus is on the entire event of stretching the wire tightly over a span. Likewise, in (4-6), the event of coming out of the country is the focus. In the following example on the other hand, only the reduplicative forms are permitted because the context specifies that the event takes place continuously or repeatedly.

- (4-7) a. Tugi kara tugi e to yatugibaya ni poN-poN to
 next from next to Quot fast like arrows
 kotoba ga toN-de ku -ru.
 word Sbj fly-Ger come-Pres
 'Words come out of his mouth one after another like
 arrows. = He speaks a mile a minute.'
- b. *Tugi kara tugi e to yatugibaya ni poN to kotoba
 ga toN-de ku-ru.

The contrast of reduplicative forms vs. single forms is also attested in mimetic adverbs with initial consonants other than /p/. See the following.

- (4-8) a. Okaa-saN no te o gui to hiQpaQ-ta.
 mother-Hon Gen hand Obj pull -Past.
 '[The child] forcefully pulled the mother's hand once.'

- b. Mizu -iro no atarasii musu -tori -ami o
water-color Gen new insect-catch-net Obj

kakae-ta otoko no ko ga epuron o tuka-ta
carry-Past male Gen child Sbj apron Obj wear-Past

mama no okaa -saN no te o gui-gui
as it is Gen mother-Hon Gen hand Obj

hiQpaQ-te ki -mas-u.
pull -and come-Pol-Pres

'A boy with a new blue butterfly net comes this way as
he (continuously and forcefully) drags his mother, who
is still with an apron on, by the hand.'

- (4-9) a. Zyuusu o sutoroo de tyuQ to suQ -ta.
juice Obj straw with suck-Past

'[The child] slurped up the juice with the straw.'

- b. Zyuusu o sutoroo de tyuQ tyuQ to suQ-ta.
juice Obj straw with suck-Past

'[The child] drank up the juice with the straw with
two slurps.'

- (4-10) a. ToN to kata o tatai-ta.
shoulder Obj tap-Past

'I tapped her on the shoulder once.'

- b. ToN toN to kata o tatai-ta.
shoulder Obj tap -Past

'I tapped her on the shoulder twice.'

The contrast is usually clear for Class I forms. For Class III and Class IV, however, the contrast is not always clear. Since they are generally less iconic and more conventionalized, Class III adverbs and Class IV adverbs often fail to produce clear semantic correspondences. That is, either the non-reduplicative form and the reduplicative form are semantically quite different from each other, or one of the pair is non-existent. And even when the semantic resemblance is apparent, the contrast may not be immediately tied to the number of occurrences. However, even in such cases, it is often possible to

trace the contrast to the contrast of repetition. For instance, in (4-11) below, the contrast between the non-reduplicative adverb and the reduplicative adverb appears in the form of the stative condition of an object and the behavioral characteristic of a person. We can say that 'stativeness' is a kind of one-time occurrence and that 'behavior' involves repetition.

- (4-11) a. Ano oziityaN wa sesuzi ga piN to si-te
 that old man Top spine Sbj do-Ger
 i -ru.
 Cont-Pres
 'That old man's back is straight.'
- b. Ano obaatyaN wa piN-piN si-te i -ru.
 that old woman Top do-Ger Cont-Pres
 'That old woman is energetic.'

4.2.2. Partial Reduplication

4.2.2.1. Class II

In this section, we consider the partially reduplicated forms such as pi-piQ, pa-paQ and their expansions in Class II. These indicate that there is a preparatory phase to the event corresponding to the length of the initial repetition(s). They also indicate that the action is carried out forcefully, rushing, or vigorously. See the following.

- (4-12) a. Hue o pi-piQ to narasi-te kuruma o
 whistle Obj blow -and car Obj
 tome-ta.
 stop-Past
 '[The policeman] hurriedly blew a whistle a couple of
 times and stopped the cars.'
- b. Kona o pa-paQ to ire -ta.
 flour Obj put in-Past
 'I hastily scooped in some flour.'

- c. Do-dooN to toozyoo.
appearance

'Enter rushingly and forcefully. = Introducing a
revolutionary breakthrough!'

4.2.2.2. Class II

Another type of partial reduplication in the forms of pi'Q-pi, paQ'-pa and so on means that the event takes place hurriedly, unhesitantly, and/or carelessly. See the following for example.

- (4-13) a. Kona o paQ-pa to ire -ta.
flour Obj put in-Past

'I scooped in some flour unhesitantly.'

- b. ToQ-to to kie-use -ro.
disappear-Comm

'Disappear right away. = Be lost.'

- c. SaQ-sa to si-nasai.
do-CommPol

'Do it right away. = Be quick about it.'

This type of reduplication is limited to a handful of forms with /Q/. No form with /N/ can be reduplicated this way. *Pan-pa, for instance, does not exist. Another phonotactic constraint on the forms belonging to this category comes from the general constraint on gemminate clusters in Japanese which disallows geminate clusters of voiced obstruents. As a result of this constraint, the initial consonants in these forms are invariably voiceless obstruents. Thus, *zaQ-za and the like are normally precluded.

4.3. Final Elements /N, Q, Ø/

In this section, the semantic roles of the final elements are described. The phonological contrast between /N, Q, Ø/ is correlated with a semantic contrast between the manners of ending the event or movement.

/N/ indicates that the direction of the motion or the quality of the sound changes toward the end. That is, it indicates that there is a reaction or reverberation to the initial movement. It may indicate that the object is flexible or elastic and is capable of such reactions or reverberations. /Q/ on the other hand indicates that the object is inflexible and that the action is carried out vigorously in one direction or without changing its nature. Note that in the following examples, the elasticity of the object or the lingering effect of the action is indicated by the context. Therefore, only /N/ is permitted.

- (4-14) a. Gitaa no ito o piN to hazii-ta.
guitar Gen string Obj pluck-Past

'I plucked the string of the guitar.'

- b. *Gitaa no ito o piQ to hazii-ta.

- (4-15) a. Nuno o piN to haQ -ta.
cloth Obj stretch-Past

'I stretched a cloth across.'

- b. *Nuno o piQ to haQ-ta.

- (4-16) a. Gomu -huuseN ga paN to ware -ta.
rubber-balloon Sbj break-Past

'The rubber balloon blew up.'

- b. *Gomu-huuseN ga paQ to ware-ta.

- (4-17) a. Koosui ga puN to nioQ-ta.
perfume Sbj smell-Past

'The perfume smelled strongly with a lingering effect.

= I got a wiff of her perfume.'

- b. *Koosui ga puQ to nioQ-ta.

Contrast the above with the following examples in which /Q/ rather than /N/ is the norm.

- (4-18) a. Go-isi o piQ to hazii-ta.
 go-stone Obj snap-Past
 'I snapped go-stones (=small round and flat stone
 pieces used in the chess-like game of go) with my
 finger.'
- b. *Go-isi o piN to hazii-ta.
- (4-19) a. Nuno o piQ to hiki-sai-ta.
 cloth Obj pull-rip-Past
 'He quickly ripped the cloth into narrow strips.'
- b. *Nuno o piN to hiki-sai-ta.
- (4-20) a. Iro ga paQ to kawaQ -ta.
 color Sbj change-Past
 'The color changed all of a sudden.'
- b. *Iro ga paN to kawaQ-ta.
- (4-21) a. AkaNboo ga puQ to onara o si-ta.
 baby Sbj wind Obj do-Past
 'The baby passed wind.'
- b. *Akanboo ga puN to onara o si-ta.

In the above, the objects or movements are not elastic or lingering; the events are started and terminated abruptly. The contrast between (4-17a) and (4-21a) is interesting. When a lingering smell or fragrance is the main concern as in (4-17a), /N/ appears; in a context as in (4-21a) where one chooses to pay attention to the abruptness of the event instead of the lingering effect, /Q/ appears.

Sometimes, forms with /N/ and /Q/ appear contrastively in otherwise identical contexts. The contrast is an interesting one in the following.

- (4-22) a. EndaN o poN to kotowaQ-ta N
 marriage proposal Obj refuse -Past Comp
 daQ-te.
 Cop-Quot

I hear that she turned down the offer of marriage as if she was bouncing a ball. = I heard that she flatly turned down the offer of marriage.'

- b. EndaN o poQ to kotowaQ-ta N
marriage proposal Obj refuse -Past Comp
- daQ-te.
Cop-Quot

'I heard that she suddenly turned down the offer of marriage.'

In (4-22a) above, the critical issue is the boldness, daredevilness, or audacity of the person who turns down an offer which is considered to be very attractive. This comes from the association of /poN/ with the action of throwing a ball and similar objects. In (4-22b), by contrast, the issue is the abruptness of the event. In other words, /poQ/ in (4-22b) indicates that there was no indication of the move in advance.

Forms with other initial consonants also support the above claim. In the following pair, both /kiiN/ in (4-23a) and /kiiQ/ in (4-23b) are translated with the verb 'screech.' However, /kiiN/ is used to describe a long resonating sound, while /kiiQ/ is used to describe a sound made when stopping a car abruptly.

- (4-23) a. BeiguN no bakugekiki ga kiiN to iu oto
US Army Gen fighter plane Sbj say sound
- o hibik-ase -te ik-u naka...
Obj sound-Caus-Ger go-Pres while
- 'As a fighter plane of the US Army screeched over [my
house], ...'
- b. Kuruma wa kiiQ to oto o tate-te
car Top sound Obj make-and
- tomari-masi-ta.
stop -Pol -Past
- 'The car screeched to a sudden stop.'

Other forms with /N/ with the meaning of 'lingering effect' or 'elasticity' include the following. The right-hand column identifies the examples of events or objects that the adverbs describe.

(4-24)	a. koN	the resonating sound of a bell
	b. kaN	the resonating sound of a bell
	c. toN	hitting a drum; tapping on the shoulder
	d. tiN	sound produced by hitting a small bell; hitting a triangle (=musical instrument)
	e. baN	the sound of a gun
	f. boN	striking the key of the piano
	g. buN-buN	humming of a bee
	h. tyuN	chirping of a small bird such as a sparrow

The meaning of 'the involvement of the nasal cavity' is attested in the following forms.

(4-25)	a. kuN	sniffing at; whining
	b. tuN	stimulative odor
	c. syuN	blowing the nose
	d. huN	puffing air through the nose

Note that all the above forms and /puN/ in (4-17a) share a common vowel /u/. As described in §4.6 later in this chapter, the vowel /u/ indicates a small round and/or protruded opening, and it seems that the combination of this meaning and the meaning of 'resonation' or 'redirection' of /N/ produces the specific meaning of 'nasality' in these examples. At the same time, it is not just the vowel /u/ that has the meaning of 'nasality.' In (4-26) to follow, (4-26a) with /N/ indicates the involvement of the nasal cavity, but (4-26b) with /Q/ indicates the involvement of the oral cavity instead.

The same relationship as above holds true with the following pair.

- (4-29) a. PuiQ to yoko o mui-ta.
side Obj face-Past

'She turned her head away disgustedly (and forcefully).'

- b. Pui to yoko o mui-ta.
side Obj face-Past

'She turned her head away crossly (but calmly).'

When we expand our scope beyond p-initial forms, we find the following examples which support the claim about the meaning of final /Ø/.

- (4-30) a. Biiru o guiQ to nodo ni nagasi -kom -u.
beer Obj throat to let flow-push in-Pres

'She gulps down the beer (dashinglly).'

- b. Biiru o gui to nodo ni nagasi -kom -u.
beer Obj throat to let flow-push in-Pres

'She drinks down the beer (forcefully but calmly).'

- (4-31) a. HaaQ to tameiki o tui -ta.
sigh Obj attach-Past

'He drew a deep sigh.'

- b. Haa to tameiki o tui -ta.
sigh Obj attach-Past

'He drew a sigh.'

4.4. Vowel Length

The short vowels, /i, e, a, o, u/, indicate that the event is completed instantaneously and/or that the distance involved is short. The long vowels, /ii, ee, aa, oo, uu/, are extenders; they indicate that the action takes longer spatially and/or temporally and that the action is more strenuously carried out. See the following.

- (4-32) a. PiN to hiQpaQ-te.
stretch-Comm

'Stretch it tight.'

- b. PiiN to hiQpaQ-te.
stretch-Comm

'Stretch it very tight.'

- (4-33) a. Tanuki no onaka ga paN to haretu si-te
badger Gen stomach Sbj explosion do-Ger
simaQ-ta no des -u.
end up-Past Comp CopPol-Pres

'The badger's stomach blew open with a (short) bang.'

- b. Tanuki no onaka ga paaN to haretu si-te
badger Gen stomach Sbj explosion do-Ger
simaQ-ta no des -u.
end up-Past Comp CopPol-Pres

'The badger's stomach blew open with a (long) bang.'

- (4-34) a. Reizooko o ake -tara sakana no nioi ga
refrigerator Obj open-when fish Gen smell Sbj
puN to si-ta.
do-Past

'When I opened the door of the refrigerator, I was
hit with the powerful smell of fish.'

- b. Reizooko o ake -tara sakana no nioi ga
refrigerator Obj open-when fish Gen smell Sbj
puuN to si-ta.
do-Past

'When I opened the door of the refrigerator, I was
hit with the very powerful smell of fish, [so powerful
that I could have smelled it from a distance].'

- (4-35) a. PiQ to momeN no nuno o hiki-sai -ta.
cotton Gen cloth Obj pull-tear-Past

'She tore a short strip of cotton cloth.'

- b. PiiQ to momeN no nuno o hiki-sai -ta.
cotton Gen cloth Obj pull-tear-Past

'She tore a long strip of cotton cloth.'

- (4-36) a. Tukusi wa neQtoo ni sake syoo-syoo
horsetail Top hot water in sake a small amount

o tarasi-ta naka de yude-ru to
Obj drop -Past inside in boil-Pres when

iro ga paQ to utukusiku nari -mas-u.
color Sbj beautiful become-Pol-Pres

'As for the horsetails, boil them in hot water with a dash of sake, and they will turn a vivid color all at once in a second.'

- b. Tukusi wa neQtoo ni sake syoo-syoo
horsetail Top hot water in sake a small amount

o tarasi-ta naka de yude-ru to
Obj drop -Past inside in boil-Pres when

iro ga paaQ to utukusiku nari -mas-u.
color Sbj beautiful become-Pol-Pres

'As for the horsetails, boil them in hot water with a dash of sake, and they will turn a vivid color rapidly (but not all at once.)

As we have seen above, many instances of monosyllabic mimetic adverbs can employ both the short and the long forms. However, there are cases where the contexts disallow the use of one or the other. See the following.

- (4-37) a. Watasi no kehai o kaNzi-ru to paQ to
I Gen indication Obj feel -Pres when

kao o age-ta.
face Obj raise-Past

'When she felt me approaching, she raised her head instantly.'

- b. *Watasi no kehai o kaNzi-ru to paaQ to kao o
age-ta.

- (4-38) a. Iti-zikaN mo si-nai uti ni paaQ to
one-hour even pass-Neg while
naku naQ -tyaQ -ta.
absent become-complete-Past

'Before even an hour passed, it was all gone (fast).

= In less than an hour, it was all gone.'

- b. *Iti-zikaN mo si-nai uti ni paQ to naku
naQ-tyaQ-ta.

In (4-37) above, (4-37b) is not permitted, at least not in the sense of (4-37a), because the action of raising one's head normally is not a diffused act. It is only marginally acceptable in the sense that there were a large number of people who raised their heads almost but not exactly at once. In (4-38), on the other hand, the short form is not permitted because the context clarifies that the event took place gradually over a period of about one hour, not at once.

Forms with initial consonants other than /p/ also exhibit the contrast of temporal/spatial distribution. See the following.

- (4-39) a. Kaa-saN-gitune wa sono te ni haQ to
mother -fox Top that hand to

iki o huki-kake -te yari-masi-ta.
breath Obj blow-cover-Ger give-Pol -Past

'The mother fox warmed the [baby fox's] paws with her (short) breath.'

- b. Kaa-saN-gitune wa sono te ni haaQ to
mother -fox Top that hand to

iki o huki-kake -te yari-masi-ta.
breath Obj blow-cover-Ger give-Pol -Past

'The mother fox warmed the [baby fox's] paws with her (long) breath.'

Other concepts associated with long vowels include 'emphasis' and 'strength.' The long vowel in (4-40b) below is used to emphasize the action without clear reference to length.

- (4-40) a. SoQ to naka o nozoi-ta.
 inside Obj peek-Past
 'She peeked inside quietly.'
- b. SooQ to naka o nozoi-ta.
 inside Obj peek-Past
 'She peeked inside very quietly.'

4.5. Diphthongs

There are three diphthongs that occur in mimetic adverbs. These are /ai, oi, ui/. The appearance of these is limited to monosyllabic roots; no bisyllabic mimetic adverbs employ diphthongs either in the first or the second syllable. Another phonotactic peculiarity concerns /ai/. The diphthong /ai/ is limited to /wa'i-wai/ 'clamorously.'

The diphthongs /oi/ and /ui/ contrast with long and short vowels. The contrast between /oi/ and /ui/ is parallel to the contrast between /o/ and /u/ or between /oo/ and /uu/ and will be discussed later. For the moment we will focus on their contrast vis-a-vis long or short vowels.

The meaning of the diphthongs /oi, ui/ is 'circular movement with a short radius' or 'involvement of the (semi-)circular movement of joints such as the neck, the wrist, the arm and the leg.' In addition, the sense of casualness or easiness of the movement is often implied. See the following examples.

- (4-41) a. Pui to yoko o muk-are -tyaQ -ta.
 side Obj face-Pass-end up-Past
 'She turned her head away from me.'

- b. Poi to kago ni gomi o hooQ-ta.
basket to trash Obj throw-Past
'I tossed the trash into the basket (using the wrist).'
- c. Pyoi to uekomi o tobi -koe -ta.
shrubby Obj jump-cross-Past
'He casually jumped across the shrubby.'

In forms with initial consonants other than /p/, we also see that diphthongization indicates 'casualness,' 'effortlessness,' or 'easiness.' See the following examples.

- (4-42) a. Hoi-hoi to naN ni demo noQ-te ku -ru.
to whatever ride-Ger come-Pres
'He will go along with any plan without a second thought.'
- b. Sore o Tamotu wa hyoi to tobi -koe -te
that Obj Tamotu Top jump-cross-and
sono mama dote o nobori-masi-ta.
that just as bank Obj climb-Pol -Past
'Tamotsu effortlessly jumped over it and climbed straight up the bank.'
- c. Tyoi to itazura ga si-taku naQ -ta
mischievous Obj do-desiring become-Past
no des -u.
Comp CopPol-Pres
'He felt like doing a little easy trick.'
- d. Okage de ima wa hurorida no umi o sui-sui.
thanks to now Top Florida Gen sea Obj
'Thanks to [his father's instruction, the baby boy] now is water-skiing so easily and smoothly in the ocean of Florida.'

Although questionable, the following also may be interpreted to indicate circular body movements.

- (4-43) Oi-oi to nai-ta.
cry-Past

'[An adult] cried (explicitly and physically manifesting the sorrow by jolting the body or moving the arms). = He cried his heart out.'

Whether /ai/ should be treated together with /oi, ui/ is even more questionable than the above case. The solitary example of /ai/, /wa'i-wai/, means 'clamorously' and resembles /wa'a-waa/ which means 'noisily.' However, it contrasts with the latter in that it cannot be used in a context where 'sorrow' is implied and also in that it invariably assumes either a plural subject or a variety of noises. See the following.

- (4-44) a. Wai-wai sawai -da.
make a noise-Past

'They were clamorous.'

- b. *Wai-wai nai-ta.
cry-Past

- (4-45) a. Waa-waa sawai -da.
make a noise-Past

'They/she/he were/was clamorous.'

- b. Waa-waa nai-ta.
cry-Past

'They/she/he cried noisily. = They/she/he wailed.'

In other words, while /waa-waa/ simply refers to the volume of human voice, /wai-wai/ refers to the heterogeneity of the sound source. As we shall see in §5.9.1.7 and §6.1.2, this particular meaning is that of medial /y/ and palatalization. Considering the likelihood that /yi/ historically merged with /i/ and that there is no contrast between /yi/ and /i/ in the contemporary Tokyo dialect, /wai-wai/ then may be best interpreted as //wayi-wayi//. Should this analysis bear out, at least /ai/ might be excluded from the underlying inventory of mimetic diphthongs.

4.6. Vowels

In p-initial forms, the vowels indicate the shape of the object, the size of the affected area, and, secondarily, the pitch of the sound produced from the involvement of the object. As shown in §2.2.2.2.2, all five vowels, /i, e, a, o, u/, are used, but /e/ is markedly less frequent.

The semantic feature attributed to the sound of /i/ is the indication of the involvement of a line or a unilineally stretched object. In addition, the meaning of a high-pitched sound is attributed to /i/. See the following for sample situations which /piN/ and /piQ/ describe.

- (4-46) a. piN striking a string (and producing a high-pitched sound); stretching a cloth/string/rope/fishing line; stiff peaks of foam, a stiff mustache, or stiff ears; a tense atmosphere or sharpness of sensation/intuition; jumping movement of a thin object such as a fish or a tail; the way glasses/cups/china crack with one or a few lines
- b. piQ a shrill high-pitched sound of a whistle or a sharp cry of a small bird; tearing cloth or tearing off adhesive tape; throwing something small such as a small amount of water or a pebble sharply over a long distance

The vowel /e/ in /peQ/ by contrast lacks a clear sense of line. The context where /peQ/ is used is when describing the action of spewing saliva or something from the mouth. And the implication that is attributable to /e/ is that of inappropriateness/vulgarness of the action. In the following, (4-47) allows only /piQ/, while (4-48) allows only /peQ/.

- (4-47) a. Te o huQ -te piQ to mizu o
 hand Obj shake-and water Obj
- tob-asi -ta.
 fly-Caus-Past
- 'I shook my hand hard to make water fly far.'
- b. *Te o huQ-te peQ to mizu o tob-asi-ta.

- (4-48) a. SoNna ni tuba o pe'O-pe to hai-tya dame.
 such Adv saliva Obj spew-Top no good
 'Don't spew saliva like that.'
- b. *SoNna ni tuba o piQ-pi to hai-tya dame.

Next, see some situations which /paN/ and /paQ/ describe.

- (4-49) a. paN striking a board with a flat object
 such as a hand or a book, clapping
 hands flatly with fingers stretched
 out, or beating a quilt-like object
 with a board or a hand-like object;
 the way a rubber balloon blows up
 with a loud noise, the way a large
 firework cracks in the sky, or the way
 a child shoots a toy gun with a bang
- b. paQ instantaneous abrupt happenings such
 as an explosion of a grenade; doing
 things abruptly and conspicuously

The semantic feature which is shared by both /paN/ and /paQ/ and which at the same time sets them off from forms with other vowels is the meaning that the movement or event affects a large area, or that the total of the object is involved. This meaning then is attributed to the common vowel /a/. The following examples will further clarify the point.

- (4-50) a. PaQ to kuti no naka no mono o
 mouth Gen inside Gen thing Obj
 haki-dasi -ta.
 spit-push out-Past
 'She suddenly spit out all that she had in the mouth
 (with the mouth wide open).'
- b. Ryoo-te o paN to tatai-ta.
 both-hand Obj hit -Past
 'He clapped his hands (with the fingers stretched out
 flat so that a large area would come into contact).'

The vowel /a/ may also indicate that the event, being colorful or gaudy, stands out. One of the most illuminating uses of /a/ for this meaning is the phrase /paQ to si-nai/ 'does

not stand out.' This is a combination of the mimetic adverb /paQ to/, the all-purpose verb /si-/ 'do' and the negative marker /-nai/. See the following example.

- (4-51) Syakai -too wa koNkai no seNkyo de mo
 socialist-party Top this time Gen election in even
paQ to si-mas-eN desi -ta.
 do-Pol-Neg CopPol-Past

'The Socialist Party did not stand out in this election,
 either. = The Socialist Party was not successful in
 this election, either.'

Next, see the summary of the contexts where /poN/ and /poQ/ are used.

- (4-52) a. poN tapping the shoulder or a hand drum;
 the way heated chestnuts crack;
 clapping hands lightly without tensely
 stretching fingers; throwing a ball
 casually or "throwing" words or
 turning down such things as a fortune
 or an attractive offer
- b. poQ a sudden appearance of an object like
 a head in a hole; blushing of the
 cheeks; any sudden but inconspicuous
 change

The above shows that, in contrast to /a/, /o/ in /poN/ and /poQ/ is used where the affected area or object is small or where the event affects only part of the object. Contrast the following with (4-50b).

- (4-53) Ryoo-te o poN to tatai-ta.
 both-hand Obj hit -Past
 He clapped his hands lightly (without stretching
 them).

In addition to the above meaning, /o/ indicates that the event is inconspicuous or modest. This is in clear contrast with the meaning of 'conspicuousness' of /a/. A particularly illuminating example is the following.

- (4-54) a. Inaka kara poQ to de-te ki -te
 countryside from exit-Ger come-and
paQ to sutaa ni naQ -ta.
 star to become-Past

'She came out from the countryside (inconspicuously)
 and became a star (conspicuously). = She came out of
 the sticks and became a star all of a sudden.'

- b. *Inaka kara paQ to de-te ki-te poQ to sutaa ni
 naQ-ta.

Note that, although both /poQ/ and /paQ/ refer to a sudden change, they cannot be switched in (4-54) above. This is because /poQ/ indicates an inconspicuous change while /paQ/ indicates a conspicuous change.

The vowel /u/ indicates that the event involves a small round opening such as the nose or the mouth. Some specific contexts where /puN/ and /puQ/ are used follow.

- (4-55) a. puN when a strong smell hits someone;
 when someone gets angry and pushes
 out the lips
- b. puQ pushing out air or a small object
 through a small opening such as the
 nose or the protruded lips; when
 someone gets angry and pushes out
 the lips

Additionally, see the following examples.

- (4-56) a. PuQ to kuti kara tane o haki-dasi -ta.
 mouth from seed Obj spit-get out-Past
 'I puckered my lips and spit a seed out.'
- b. Omoti ga puQ te hukure-ta.
 rice cake Sbj puff-Past
 '[Being heated,] the rice cake puffed up (as a balloon
 would when air goes in through its narrow opening).'
- c. Itu made puN-puN si-te -ru no.
 when till do-Ger-(Cont)-Pres Atten

'How long are you going to be mad (with the cheeks blown up like a balloon and the mouth tightly shut and pushed forward)?'

The semantic features that we identified for the vowels based upon p-initial mimetic adverbs account for the contrasts in other forms as well.

In the next set of examples, we find one meaning of /i/ 'high-pitchedness' repeated.

- (4-57) a. Boosi-ya-saN wa sore o hitosasi-yubi no
 hatter -Hon Top that Obj pointer Gen
 saki ni noQke-te katiawase-te mi-ru to
 tip at put -and hit -Ger try-Pres when
tiN tiN to yoi oto ga si-masi-ta node...
 good sound Sbj do-Pol-Past therefore
 'When the hatter hit [the coins between the thumb and]
 the index finger, they made a (high pitched) clinking
noise, so . . .'
- b. Hana o kaN-dara totaN ni tiiN to mimi ga
 nose Obj blow-when instantly ear Sbj
 naQ-te mimi no oku ni karui itami o
 ring-and ear Gen inside in light pain Obj
 oboe-masi-ta.
 feel -Pol -Past
 The moment I blew my nose, I heard a ringing in the
 ear and felt a light pain in the inner ear.'
- c. Uti wa atugi no soba ni a -ru -node
 house Sbj Atsugi Gen near at exist-Pres-because
 hikooki ga kiiN kiN te urusai N des -u.
 airplane Sbj noisy Comp CopPol-Pres
 'My house is near Atsugi Camp [of the US Army], so
 the piercing (high-pitched) noises of the [fighter] planes
 annoy us.'

- d. Kii-kii nai-te urusai ko des-u.
cry-and noisy child CopPol-Pres

'She is a noisy girl who shriecks. = Her crying is very shrill and it goes through you.'

The semantic feature of 'straightness' or 'directness' is also observed in the following examples.

- (4-58) a. KiQ to mi-sue-ta.
see-set-Past

'She stared at him sternly.'

- b. ZiQ to mi-tume -ta.
see-push in-Past

'He stared at her without moving.'

Although it is another high vowel, /u/ unlike /i/ nowhere indicates 'high-pitched, irritating, and/or piercing noise.' If it relates to sounds, /u/ rather expresses a mellow unobtrusive sound. Contrast below (4-59a) and (4-59b) with above (4-71) and (4-72) respectively.

- (4-59) a. Inu ga kuN-kuN nai-te i -ru.
dog Sbj cry-Ger Cont-Pres

'A dog is whimpering.'

- b. GaQkoo no yane de wa hato ga hikui koe
school Gen roof at Top pigeon Sbj low voice
de kuu-kuu nai-te i -mas-u.
Adv cry-Ger Cont-Pol-Pres

'On the roof of the school, pigeons are cooing.'

It will be noticed that the above cases also can be interpreted to involve small openings, namely the nose and the mouth. The following examples more clearly demonstrate the wide use of the vowel /u/ with the characteristic meaning of 'small round shape.'

- (4-60) a. Mama, huuQ te yaQ-te.
Mama do -Comm
'Mommy, blow out [the candles].'
- b. Hyuu to saki ga toNgaQ -te i -ru
tip Sbj be pointed-Ger Cont-Pres
zidoosya.
car
'An automobile which has a sharp pointed tip and is streamlined.'
- c. Sunuupii mitai ni tyuQ te kisu si-ta no.
Snoopy like Adv kiss do-Past Atten
'She gave him a smacking kiss like Snoopy does.'
- d. Tyuu-tyuu suQ -te -ru.
suck-Ger-(Cont)-Pres
'[The baby] is sucking [from a bottle].'
- e. SyuQ to hito-huki.
one-spray
'[Give the fly] a quick shot of spray.'
- f. GuQ to nomi-hosi-nasai.
drink-dry-Comm
'Gulp it down the throat.'

As described in §4.4, /u/ with final /N/ often indicates specifically the involvement of the nasal cavity. Clearly, /u/ in such cases contributes the meaning of 'small protruded openings.' See the following examples, too.

- (4-61) a. HuN to hana no saki de asiraw-are-ta.
nose Gen tip at treat -Pass-Past
'I was treated contemptuously at the tip of the nose
by her. = She stuck her nose up in the air at me.'
- b. HuN huN te yaQ-ta kedo nani mo de-te
do-Past but nothing come-Ger
ko -nakaQ-ta.
come-Neg -Past

'I sniffed and snorted [to remove the irritating object], but nothing came out.'

- c. Ake-te mi-ru to tuuN to kabi-kusai nioi
 open-Ger try-Pres when mold-smelly smell
 ga si-te . . .
 Sbj do-and

'When she opened [the box], she smelled a strong musty odor, and . . .'

- d. Wasabi ga hana ni tuuN to ki-ta.
 Japanese horseradish Sbj nose to come-Past

'The Japanese horseradish was very pungent, and it went up through my nose.'

- e. Ohana syuN te yaQ-te.
 nose do-Comm

'Give your nose a little blow.'

- f. Inu ga zimeN o kuN-kuN kagi-mawaQ -te
 dog Sbj ground Obj sniff-go around-Ger
 i -ru.
 Cont-Pres

'The dogs are sniffing at the ground.'

The meaning of /a/ which we identified as 'expansiveness' and 'conspicuousness' in p-initial forms recurs elsewhere in the sense of 'vividness,' 'liveliness' and the like. See the following.

- (4-62) a. To mura no hoo kara kaaN kaaN to
 then village Gen direction from
 kane ga naQ-te ki -masi-ta.
 bell Sbj ring-Ger come-Pol -Past

'Then, from the direction of the village, they heard the bells ringing clearly.'

- b. Demae o zyaN-zyan tor -i gaisyoku o
 delivery O order-and eating out Obj
 sure-ba ii.
 do -if good
 'It will do [without cooking yourself] if you have food
 delivered frequently (and conspicuously without
 hesitation) and eat out [whenever].'
- c. Yoi sigoto o s-i iki-iki to hatarai-te
 good work Obj do-and livelily work -Ger
 i -ru zyosee no ooku wa sesuzi o
 Cont-Pres women Gen many Top back Obj
syaN to nobas -i mune o haQ -te
 stretch-and chest Obj stretch-and
 saQsoo to arui-te i -ru.
 smartly walk-Ger Cont-Pres
 'Many of the women who have good jobs and enjoy
 them walk confidently (keeping their back firm and
 straight and throwing out their chest).'

The vowel /o/ on the other hand appears with the meaning of 'reservedness.' See the following.

- (4-63) a. Saisyo no uti wa isi de tyon tyon te
 beginning Gen inside Top stone with
 yaQ-te kakera moQ-te iQ-te -ta N
 do -and chip have-Ger go-Ger-(Cont)-Past Comp
 des -u.
 CopPol-Pres
 'In the beginning, [the tourists] would chip away
 at the tombstone (lightly) with a stone and take home
 only the small chips.'
- b. Demo tyoQ to kowai des -u ne.
 but scary CopPol-Pres Atten
 'But it's a little scary, isn't it?'

The meaning of /e/ is 'vulgarness' in most cases throughout. See the following.

- (4-64) a. Ke-keQ to waraQ-ta.
 laugh -Past
 'She laughed in a vulgar manner.'
- b. Toire de gee-gee hai -tyaQ -ta.
 bath room in throw up-end up-Past
 'I ended up throwing up in the bathroom (repeatedly and noisily).'
- c. DeN to kosi o orosi-ta.
 waist Obj lower-Past
 'He sat down (looking heavily).'

4.7. Palatalization

As we will see in detail in §6.1.2, palatalization is tied to a semantic continuum of 'childishness' and 'excessive energy.' See the following.

- (4-65) a. Hyoozyuu ga i -naku nar -u to GoN wa
 Hyoju Sbj stay-Neg become-Pres when Gon Top
pyoi to kusa no naka kara tobi-dasi -te...
 grass Gen inside from jump-get out-and
 'When Hyoju was gone, Gon hopped out of the grass and ...'
- b. Pyuu-pyuu kaze ga huk-u.
 wind Sbj blow-Pres
 'The wind whistles through noisily.'

4.8. Voicing of Initial Consonants

The contrast in voicing of initial consonants is correlated with the semantic contrast of 'light/small/fine/thin' vs. 'heavy/large/coarse/thick.' That is, voiceless obstruents /p, t,

s, k/ indicate light/small/fine/thin objects and other semantically related concepts, while, voiced obstruents /b, d, z, g/ indicate heavy/large/coarse/thick objects and other semantically related concepts. See the following pairs.

- (4-66) a. SupuriNkuraa no mizu ga paQ to
 sprinkler Gen water Sbj
 kakaQ -ta.
 be sprayed on-Past
 'I was caught by the (light splash from the) sprinkler.'
- b. Mizu o baQ to kaker-are-ta.
 water Obj pour-Pass-Past
 'He threw out (a bucket of) water [and I was
 drenched].'
- (4-67) a. PiQ to kire o hiki-sai -ta.
 cloth Obj pull-tear-Past
 'I ripped apart the light cloth.'
- b. BiQ to kire o hiki-sai-ta.
 cloth Obj pull-tear-Past
 'I ripped apart the heavy cloth.'
- (4-68) a. Nani ka to omoQ-tara koori ga paaQ to
 what Inter Quot wonder-when ice Sbj
 hirogaQ-te -ru no
 spread -Ger-(Cont)-Pres Atten
 'What first intrigued me turned out to be nothing but
 hailstones spread over [the ground].'
- b. Basu ga baaQ to iQ-tyaQ -ta ato ni wa
 bus Sbj go-complete-Past after Top
 moo kawai soo ni koo iu huu ni
 very miserable Adv this say fashion Adv
 kake-tyaQ -tari si-te.
 lack-end up-and so on do-and

'After the bus dashed out (very fast and noisily), they would find [the tombstone] miserably chipped like this.'

- (4-69) a. Kutibue o pyuuQ to hui -ta.
whistle Obj blow-Past
'She blew a (long) whistle.'
- b. OkaasaN ga seNtaku si-te soto ni hosi-te
mother Sbj laundry do-and outside in dry-Ger
oi -ta tokoro byuuQ to sugoi kaze ga
keep-Past then immense wind Sbj
hui -te basu-taoru o tob-asi-te simaQ-ta
blow-and bath-towel Obj fly-Caus-Ger end up-Past
no des-u.
Comp CopPol-Pres
'His mother had washed the bath towel and hung it outside; then, a strong gust came and blew away the towel.'

The contrast between /p/ and /b/ in above (4-67a) and (4-67b) is straight-forward. In (4-68a), /p/ is used because of the small size or light weight of the hailstones. In (4-68b), on the other hand, /b/ is related to the size of the object involved, namely that of the bus. Similarly, in (4-69), /p/ is used for a whistle, and /b/ for a strong gust. The voicing contrast also accounts for the contrast in the strength of sensation. For example, /pooQ to suru/ means 'to flush from admiration, heat, bashfulness and so on', while /booQ to suru/ means 'to feel dizzy for extreme admiration, heat, bashfulness, sickness and so on.'

Similar semantic contrasts abound in monosyllabic mimetic adverbs in general as seen in the following examples.

- (4-70) a. ToN-toN tatak-u taiko no oto ga nanika
hit -Pres drum Gen sound Sbj somewhat
- zigeN no tigau sekai e
temporal dimension Gen different world to
- hiki-kom-are-ru yoo na huNiki
pull-confine-Pass-Pres as if Gen atmosphere
- desi -ta.
CopPol-Past
- 'The (light) rhythmic sounds of beating the drums
created an atmosphere where I felt as if I was drawn
into another dimension.'
- b. DoN-doN tatak-u taiko no oto ga nanika
hit -Pres drum Gen sound Sbj somewhat
- zigeN no tigau sekai e
temporal dimension Gen different world to
- hiki-kom-are-ru yoo na huNiki
pull-confine-Pass-Pres as if Gen atmosphere
- desi -ta.
CopPol-Past
- 'The (heavy) rhythmic sounds of beating the drums
created an atmosphere where I felt as if I was drawn
into another dimension.'
- (4-71) a. GaQkoo no yane de wa hato ga hikui
school Gen roof at Top pigeon Sbj low
- koe de kuu-kuu nai-te i -masi-ta.
voice with cry-Ger Cont-Pol-Past
- 'On the roof of the school, pigeons were cooing.'
- b. Onaka ga sui -te guu-guu
stomach Sbj be empty-and
- naQ -te -ru.
sound-Ger-(Cont)-Pres
- 'I'm hungry, and my stomach is rumbling.'

- (4-72) a. Zyooro de syaa-syaa to mizu o kake-ta.
 sprinkling can by water Obj pour-Past
 'I sprinkled water with a sprinkling can.'
- b. Hoosu de zyaa-zyaa to mizu o kake-ta.
 hose by water Obj pour-Past
 'I spilled water noisily from a hose.'

The meaning of 'coarseness' of the voiced obstruent appears in the sense of 'cursoriness' or 'incompleteness' in (4-73b) below; the mimetic adverb /zaQ to/ indicates that more boiling is necessary before the potatoes are ready for eating. The mimetic adverb /saQ to/ in (4-73a), on the other hand, does not have such a meaning of 'incompleteness'. It means that the event takes place fast and smoothly; in other words, the spinach is properly cooked and ready to eat.

- (4-73) a. Kono hooreNsoo wa saQ to ni-te ari-mas-u.
 this spinach Top boil-Ger exist-Pol-Pres
 'This spinach has been briefly boiled.'
- b. Kono oimo wa zaQ to ni-te ari-mas-u.
 this potato Top boil-Ger exist-Pol-Pres
 'These potatoes have been roughly boiled. = These potatoes are underdone in places.'

4.9. Points and Manners of Initial Consonants

4.9.1. /p, b/

One semantic feature seems to be constant in the forms with /p/. This is the meaning of 'an abrupt and explosive movement or event such as hitting and explosion or the precondition for such in the form of tension.' See the following.

- (4-74) a. Siromi no awa ga piN to tat -u.
 egg white Gen foam Sbj stand-Pres
 'Whipped egg whites form stiff peaks.'

- b. Tebukuro no hamaQ-ta ryoote o paN-paN
 mitten Gen fit-Past both hands Obj

yaQ-te mi-se -masi-ta.
 do -Ger see-Caus-Pol -Past

'[The baby fox] clapped his hands several times with the mittens on.'

- c. Miso -siru no kai -gara ga paQ to
 bean paste-soup Gen shell fish-shell Sbj

hirak-u made mati-mas-u.
 open-Pres till wait-Pol-Pres

'Wait until the clams pop open in the bean paste soup.'

- d. PoN to biiru no seN o nui -ta.
 beer Gen cap Obj pull out-Past

'I popped open the beer bottle.'

- e. Mukasi taue no koro osinobi de
 once rice planting Gen about incognito

ryoonai o mi -mawaQ -te i-ta tonosama
 fief Obj see-go around-Ger Cont-Past lord-Hon

ni poQ to doro ga kakar -i...
 to mud Sbj splash on-and

'Once upon a time, a lord who was inspecting his fief

incognito around the time of rice planting

unexpectedly was splashed with mud, and ...'

- f. Saburoo ga puN to sune-te SeQ -tyaN o
 Saburo Sbj pout-and Setsuko-Endear

niraN-da.
 scowl-Past

'Saburo (suddenly) pouted and scowled at Setsuko.'

- g. Dare ima puQ te yaQ-ta no.
 who now do-Past Comp

'Who is that who passed air now? = Hey, who did it?'

The same characterization applies to initial /b/. In the following, 'suddenness' and 'forcefulness' of the event are highlighted by /b/.

- (4-75) a. NihoN-zin no ryokoo naNte miNna baaQ to
 Japanese Gen travel Top everybody

iQ-te maazyaN si-te -ru N da
 go-and mah-jongg do-Ger-(Cont)-Pres Comp Cop

mono.

I say

'I'm telling you, when the Japanese say they go on a trip, [actually], they all just travel to the destination in a big hurry (as a group) and [spend the rest of the time] playing mah-jongg [in the hotel].'

- b. GaNbaQ -te kudasai to dake sika
 do one's best-Ger I request Quot only only

i -e -nakaQ-ta N da kedo. Moo booQ to
 say-Pot-Neg-Past Comp Cop but already

si-tyaQ-te.

do-end up-and.

'I managed to say just "Good luck [in your next game]," but I couldn't say any more. For I was so excited [to see him] and I couldn't get my thoughts together.'

4.9.2. /s/ and /p/

The above characterization of /p/ and /b/ is unique to them. This becomes clear when we contrast the above with examples of other consonants. In the following, /saQ, soQ, suQ/ commonly indicate the absence of obstructions and the smoothness of the movement.

- (4-76) a. YootieN no seehuku-sugata no kodomo ga
 kindergarten Gen uniform-appearance Gen child Sbj

saQ to mae no seki ni suwari-doN -da.
 front Gen seat to sit -settle-Past

'A child in a kindergarten uniform stole the seat in front of me just like that.'

- b. Hamaguri wa saQ to yude-te kara tukai-mas-u.
clams Sbj boil-and from use -Pol-Pres

'As for the clams, use them after boiling them briefly.'

- c. SoQ to te o soe-ru to iu kaNzi ni
hand Obj add-Pres Quot say effect Adv

si-te kudasai.
do-Ger I request

'Please bring your hands gently to it.'

- d. Uki ga suuQ to hasir-u.
float Sbj run -Pres

'The float glides smoothly [over the surface of the water].'

- e. Hana ga suQ to su-ru.
nose Sbj do-Pres

'The nasal passage is cleared away (and the air passes freely).'

The contrast between /p/ and /s/ is also illustrated in the following pairs (4-77) and (4-78). In (4-77a) and (4-78a), /paQ to/ indicates that the event took place instantaneously. In (4-77b) and (4-78b), by contrast, the action is smooth but slower; in (4-77b), the use of /saQ to/ instead of /paQ to/ indicates that the ninja probably ran away without stumbling to disappear from the scene; in (4-78b), /saQ to/ indicates that the person did not waste time.

- (4-77) a. NiNzya wa paQ to kie -ta.
ninja Sbj disappear-Past

'The ninja disappeared all of a sudden.'

- b. NiNzya wa saQ to kie -ta.
ninja Sbj disappear-Past

'The ninja hurriedly disappeared.'

- (4-78) a. DeNki o paQ to kesi -ta.
light Obj turn off-Past
'I turned off the light instantly.'
- b. DeNki o saQ to kesi -ta.
light Obj turn off-Past
'I turned off the light immediately.'

4.9.3. /t, d/ and /p, b/

We have characterized /p, b/ as having the meaning of 'explosion' and 'hitting.' The above shows that this is true in contrast to /s/. However, when we contrast /p, b/ with other occlusives, it proves that the meaning of 'hitting' is not unique to /p, b/. The following examples show that /t, d/ also exhibit the meaning of 'hitting.'

- (4-79) a. Kaa -saN okata o tataki-masyo.
mother-Hon shoulder Obj tap -PolVol
TaN-toN-taN-toN-taN-toN-toN.
'Mother, let me massage your shoulders (by giving them light taps).'
- b. DaaN to iu pisutoru no oto ga kikoe -ta.
say pistol Gen sound Sbj be audible-Past
'I heard the bang of a pistol.'
- c. SoNna ni doN-doN tatak-anai-de.
such Adv hit -Neg -Ger
'Don't bang on it like that.'

The difference between /p, b/ and /t, d/ primarily concerns the nature of the surface that is involved in the hitting or explosion. Initial consonants /p, b/ indicate the explosion or hitting of a tensely stretched surface or the maintenance of such a surface as seen in the following.

- (4-80) a. PiN to ito o haQ -te kudasai.
thread Obj stretch-Ger I request
'Please stretch the thread tightly.'
- b. PiN to gitaa no ito o hazii-ta.
guitar Gen thread Obj strike-Past
'She plucked a string of the guitar.'
- c. Tanuki no onaka ga baan to haretu si-te
badger Gen stomach Sbj explosion do-Ger
simaQ-ta no des -u.
end up-Past Comp CopPol-Pres
'The badger's stomach blew open with a bang.'
- d. HuuseN ga baaN to ware-ta.
balloon Sbj break-Past
'The balloon blew up with a bang.'

The contexts where /t, d/ are used on the other hand do not involve such a stretched surface. The surface involved in the symbolism of /t, d/ is typically wood, a floor, or the ground as in (4-81a) and (4-81b) below. It is not an explosively or tensely stretched surface; the tension is rather lax.

- (4-81) a. Doa o toN-toN tatai-ta.
door Obj hit -Past
'I knocked on the door.'
- b. ZimeN o doN-doN humi -nar -asi -ta.
ground Obj stamp-sound-Caus-Past
'They stamped on the ground.'

The same stretchable surface can be hit either forcefully or lightly, giving rise to different degrees of tenseness. When such a surface is hit hard, /p/ is used to describe it. When such a surface is hit lightly, /t/ is used to describe it. See the following.

- (4-82) a. PoN-poN taiko o tatak-u.
drum Obj hit -Pres
'They hit small drums vigorously.'

- b. ToN-toN taiko o tatak-u.
drum Obj hit -Pres

'They hit small drums lightly.'

- (4-83) a. Kata o poN to tatai-ta.
shoulder Obj hit -Past

'I tapped her vigorously on the shoulder.'

- b. Kata o toN to tatai-ta.
shoulder Obj hit -Past

'I tapped her lightly on the shoulder.'

The contrast of 'tensely stretched surface' and 'not tensely stretched surface' explains why /p, b/ are often related to 'explosion' or 'breaking' as seen in (4-80c), (4-80d) above and (4-84) below, while /t, d/ are not.

- (4-84) PiiN to garasu ga ware-ta.
glass Sbj break-Past

'The glass cracked with a sound.'

Some contrasting cases of /p, b/ and /t, d/, however, cannot be accounted for in terms of 'the physical tension of the surface.' First, see the following uses of /puuN/.

- (4-85) a. PuuN to umi no nioi ga si-ta.
sea Gen smell Sbj do-Past

'I smelled (the distinct smell of) the ocean.'

- b. *TuuN to umi no nioi ga si-ta.

- (4-86) a. PuuN to ase no nioi ga si-ta.
sweat Gen smell Sbj do-Past

'I smelled (the distinct smell of) the sweat.'

- b. *TuuN to ase no nioi ga si-ta.

- (4-87) a. PuuN to koosui no nioi ga si-ta.
perfume Gen smell Sbj do-Past

'I smelled (the distinct smell of) the perfume.'

- b. *TuuN to koosui no nioi ga si-ta.

Although both /puuN/ and /tuuN/ refers to smells, /tuuN/ is not allowed in the above.' In the following example, on the other hand, only /tuuN/ is used, and /puuN/ is not allowed.

- (4-88) a. TuuN to kabikusai nioi ga si-ta.
 musty smell Sbj do-Past
 'I smelled a (strong) musty smell.'
 b. *PuuN to kabikusai nioi ga si-ta.

In addition to the above uses, /puuN/ is used to describe the smells of flowers and garbage, not too tidy public restrooms, a skunk, and so on, and /tuuN/ is used to describe the sensation of hot mustard, onions, Japanese horseradish, ammonia from a bottle, and so on. The contrast, then, is not between a good smell and a bad smell. Rather, it is the difference between enveloping odors and localized stimulation. Indeed, as seen in (4-89) below, when the context indicates that a large area is full of a certain smell, /puuN/ is the ordinary choice. We might say that /puuN/ indicates 'explosive enveloping smells' as opposed to 'non-explosive localized sensation' of /tuuN/.

- (4-89) a. PuuN to atari itimeN nioi ga
 surrounding all over smell Sbj
 tati-kome-ta.
 stand-fill-Past
 'The odor filled the area.'
 b. *TuuN to atari itimeN nioi ga tati-kome-ta.

4.9.4. /k, g/

We have seen that /p, b/ relate to 'tensely stretched surface,' and /t, d/ to 'lax surface.' In contrast to these, /k, g/ turn out to indicate 'contact with a hard solid surface such as metal.' See the following.

- (4-90) a. Kin koN kaN to kane ga naQ-ta.
chime Sbj ring-Past
The chime rang clearly.
- b. KaQ to nomi o uti -koN -da.
chisel Obj strike-force in-Past
He struck down a chisel forcefully into a hard surface.
- c. SaNriNsya sabi-tyaQ-te kii-kii iQ -te -ru
tricycle rust-end up-and say-Ger-(Cont)-Pres
wa.
Emph
The tricycle is rusted and it's squeeking.
- d. Kanazuti de kugi no atama o koN-koN tatai-ta.
hammer with nail Gen head Obj hit -Past
I struck the head of a nail with a (steel) hammer
several times.
- e. GaN to iwa ni atama o butuke-ta.
rock to head Obj hit -Past
I hit my head against the rock very hard.
- f. Yane ni ima roku-siti-niN no otoko no hito
roof on now six-seven-person Gen male Gen person
ga arui-te moo atama ga gaN-gaN su-ru
Sbj walk-and indeed head Sbj do-Pres
hodo no sugosa des-u.
degree Gen extremeness CopPol-Pres
Six or seven men are walking on the roof now [to repair
it], and it is so noisy that my head aches as if it were
being pounded on with a hard object. = Six or seven men

are walking on the roof now [to repair it], and it is so noisy that I have a splitting headache.'

- g. Yokotae-te a ru boo o zuuN to nui te
lay -Ger keep-Pres bar Obj pull out-Ger
sima -u -Qteeto tobira e te o kake-te
finish-Pres-when door to hand Obj place-and
gi-giiQ.

'When they pulled out the bar that had been placed across [the door], they put their hands on the door and [pushed it open] with a heavy squeeking sound.'

Contrast the above with the following, and the difference between /k, g/ and /t, d/ is clear.

- (4-91) Ita o toN toN to tatai-ta.
wooden board Obj hit-Past

'I tapped on a wooden board twice.'

From the primary meaning of /k, g/, 'involvement of a hard surface,' its secondary meaning 'hardness/intenseness' without reference to hitting or contact on a hard surface is derived. The following examples show this use of /k, g/.

- (4-92) a. ToQko wa kyuQ to kutibiru o kami-sime-te
Tokko Sbj lip Obj bite-close-and
yure-ru turibasi o mi-masi-ta.
sway-Pres suspension bridge Obj see-Pol-Past

'Tokko bit the lips hard and looked at the swaying suspension bridge.'

- b. Kono hitotu no me o kaQ to mi-hirai-te . . .
this one Gen eye Obj see-open-and

'Opening this only eye very widely, . . .'

- c. Atama ni kaaQ to ti ga nobor-u.
head to blood Sbj rise-Pres

'My blood rushes up to my head. = I get very upset.'

- d. Omowazu kiQ to nirami-kaesi-ta.
involuntarily stare-return-Past

'Without intending to, I gave her a stern glance.'

The meaning of 'hardness/intenseness' in /k, g/ coupled with the meaning of 'high-pitched sound' in the vowel /i/ produces the meaning of 'shrill sound' in (4-90c) as well as in the following example.

- (4-93) NibaNme no see ka amari oQtori si-te
second Gen reason Ques not so much be calm -Ger

i-nai de kya'a-kyaa kii-kii sakeb-u ko
Cont-Neg and cry-Pres child

des -u.
CopPol-Pres

'Perhaps because she is the second child, she is not calm and shrieks loud and annoyingly.'

An exception to the above generalization about /k, g/ in terms of 'hardness,' 'shrillness' and so on is the meaning of /k, g/ when followed by the vowels /o, u/. In some such cases, the mimetic adverbs do not indicate either 'shrill sound' or 'intenseness' or 'hard surface.' Instead, they indicate 'a deep hollow cave' or 'velar/pharyngeal sound' as in the following.

- (4-94) a. GaQkoo no yane de wa hatō ga hikui koe de
school Gen roof on Top pigeon Sbj low voice with
kuu-kuu nai-te i -masi-ta.
cry-Ger Cont-Pol-Past

'On the roof of the school, pigeons were cooing.'

- b. Yonaka ni koN-koN seki o su-ru node
night at cough Obj do-Pres because

siNpai des -u.
worry CopPol-Pres

'Because she coughs dry coughs at night, it worries me. = Her dry night coughs worry me.'

- c. ReQsya wa toNneru o gooQ to toori-nuke -ta.
train Sbj tunnel Obj pass-go through-Past

'The train passed through the tunnel with a roaring sound.'

4.9.5. /p, b, t, d/ and /h, s, z/

When we contrasted /p, b/ and /s/, we concluded that /p, b/ have the meaning of 'abruptness' which is lacking in /s/. This is a general feature of stops. Contrasting /p, b/ with /h/ and /t, d/ with /s, z/ will demonstrate this.

The initial consonant /p, b/ generally means 'abrupt explosive release of air' as opposed to 'breath, unexplosive release of air' of /h/. In other words, the meaning of /p, b/ includes 'complete closure' corresponding to one of their phonological features which is absent in /h/. See the following pair.

- (4-95) a. Okasiku-te puQ to huki-dasi -masi-ta.
funny -and blow-get out-Pol -Past
'It was so funny that I burst out into laughter.'
- b. Roosoku o huQ to huki -kesi -ta.
candle Obj blow-extinguish-Past
'He blew out the candle.'

Likewise, the meaning of /t, d/ includes 'closure and abrupt opening,' while that of /s, z/ does not. See the following.

- (4-96) a. TyuQ te kisu si-te.
kiss do-Ger
'Give me a smacking kiss.'
- b. Gasu no oto ga syuu-syuu si-ta.
gas Gen sound Sbj do-Past
'There was the hissing sound of gas. = I heard the hissing sound of leaking gas.'

The contrast between /t, d/ and /s, z/ also appears in the sense of 'presence or absence of complete obstruction and abrupt release.' The consonants /t, d/ primarily mean the presence of large obstructing objects, while /s, z/ mean continuous movements or noise, as in the following pair.

- (4-97) a. Daa-daa to mizu ga nagare-ru.
water Sbj flow-Pres
'A large amount of water flows out after
obstructed by large objects.'
- b. Zaa-zaa to mizu ga nagare-ru.
'A large amount of water flows with noise.'

4.9.6. /m, n/

The next group of initial consonants to be dealt with is /m, n/. Due to the paucity of such forms, truly contrastive forms involving /m/ vs. /n/ apparently do not exist. Therefore, we will treat /m, n/ as a group at this point. First see the following.

- (4-98) a. PuQ to hukure-ta.
puff up-Past
'He pouted.'
- b. MuQ to hukure-ta.
puff up-Past
'He got sullen.'

In the above, /puQ to hukureta/ means that the person got angry and showed the displeasure without suppressing it. The expression /muQ' to hukureta/ on the other hand means that the person got angry or displeased but withdrew by suppressing the anger. From this contrast, we can tell that /m/ has the meaning of 'suppression' as opposed to 'explosion' of /p/. The following examples further support this view.

- (4-99) a. Apaato nikai na node muN-muN
 apartment second floor Cop because
 si-te -ru no yo.
 do-Ger-(Cont)-Pres Atten Emph
 'Because my apartment is on the second floor, it gets
stuffy.'
- b. Syootai humei no tiisana kuroi musu ga muQ to
 identity unknown small black insect Sbj
 su-ru yoo na atui hi ni wa takusan tuuro no
 do-Pres like hot day on Top a lot hall Gen
 tokoro ni de -te heekoo si-te i-mas-u.
 place at come out-and dismay do-Ger Cont-Pol-Pres
 'On muggy days, small black insects I have never seen
 before come out to the hallway and are really
 annoying.'

The meaning of 'vagueness', an idea related to 'suppression,' seems to account for the following use of /m/, too.

- (4-100) MiN-miN to semi ga nak-u.
 locust Sbj cry-Pres

'The locusts are singing.'

The same semantic component of 'suppression' or 'vagueness' explains /n/ in the following examples. In (4-101a) and (4-101b) below, the obscurity of the identity of the object, or its irrelevance in the context, is indicated by /n/. In (4-101c), /niQ' to/ describes a suppressed way of expressing pleasure.

- (4-101) a. Hai-ru to sugu me no mae ni
 enter-Pres when immediately eye Gen front in
 teNzyoo made mo todok-u yoo na iQpoN no
 ceiling to even reach-Pres such one Gen
 sakura no ki ga maNkai no hana o
 cherry Gen tree Sbj full bloom Gen flower Obj

tuke-ta mama nemoto kara buQtagiQ-te
attach-Past as it was bottom from cut off -and

nuQ to ike -te aQ-ta no o mi-ta...
arrange-Ger keep-Past Comp Obj see-Past

'As soon as I entered [the house], I saw in front of my eyes that a cherry tree that was as high as the ceiling was cut off at the bottom and was placed as a flower arrangement with all the flowers in full bloom (in an odd way that was inharmonic with the surrounding) . . .'

- b. NyuQ to maiku o tuki -das -are -te
microphone Obj push-put out-Pass-and

kotae o kaNgae-ru hima mo nakaQ -ta.
answer Obj think -Pres time even not exist-Past

'They pushed out the microphone in front of me so abruptly that I did not have the time to think about the answer.'

- c. Saeki wa niQ to me de waraQ-ta dake de
Saeki Top eye with smile-Past only Cop
aQ-ta.
exist-Past

'Saeki just grinned with his eyes.'

4.9.7. /w, y, Ø/

The final group of initial consonants to be discussed in detail is /w, y/. In addition, because of its semantic similarity to w-initial forms, V-initial mimetic adverbs will be also discussed here.

The consonant /w/ in contemporary Japanese is normally followed by /a/. The meaning of w-initial monosyllabic mimetic adverbs is 'human or animal noise' or 'emotional upheaval.'

- (4-102) a. BikuQ to asi o tizime-te waaN to
leg Obj shorten-and
naki-dasi-masi-ta.
cry-start-Pol -Past
'[My baby] shrunk her legs and started to cry loudly.'
- b. Sore kara tati-domaQ-te waN to hoe-masi-ta.
that from stand-stop-and bark-Pol-Past
'[The dog] then stopped and barked once.'
- c. Saisyuu-kai de wa Asaoka-saN to wakare-ru
last -time at Top Asaoka-Hon with part-Pres
no ga turaku-te waa-waa nai-tyaQ -ta.
Comp Sbj hard-and cry-end up-Past
'At the last [filming], I hated to part with Ms. Asaoka
and ended up crying out loud.'
- d. Kaeri wa Kokura de gooryuu. Roku-niN de
return Top Kokura at join six -people with
wai-wai nigiyaka ni kikyoo si-masi-ta.
clamorously come home-Pol-Past
'On the way home, we met at Kokura, and six of us came
back together clamorously.'

As stated above, /w/ in the general part of contemporary Japanese grammar is followed only by /a/. However, in mimetic words, /w/ may also be followed by /e/ and /o/. In such cases, also, /w/ means 'human or animal noise.' See the following.

- (4-103) a. AkaNboo ga weeN to naki-dasi-ta.
baby Sbj cry-start-Past
'The baby started to cry feebly.'
- b. Nezumi wa see-iQpai ookina koe o
'Mouse' Sbj as hard as possible big voice Obj
dasi -te woo woo to hoe-masi-ta.
put out-and bark-Pol-Past
'The [dog named] "Mouse" barked [at the rabbits] as loud
as she could.'

Interestingly enough, V-initial mimetic adverbs also demonstrate the meaning of 'human noise' as below (4-104a) and (4-104b). The number of V-initial monosyllabic mimetic adverbs is limited; as we will see in §5.9.2.7, however, there are a large number of V-initial bisyllabic mimetic adverbs, and this characteristic will become clearer there.

- (4-104) a. Qi-oi nai-ta.
cry-Past
'She cried loudly.'
- b. ON-oN nai-ta.
cry-Past
'She cried loudly.'

4.10. Summary

The phono-semantic correlations of monosyllabic mimetic forms operate in the following dimensions.

Initial consonants describe the nature of movements, the quality/quantity of the objects, and the organs involved in the articulation of the sound in the case of human vocalization. This dimension of phono-semantic correlations is summarized below.

Table 4-1: Initial Consonants

p	abrupt movement	stretched-out surface/line	light/small/fine
b	abrupt movement	stretched-out surface/line	heavy/large/ coarse
t	abrupt movement	lax surface	light/small/fine
d	abrupt movement	lax surface	heavy/large/ coarse
k	abrupt movement	hard surface/deapth	light/small/fine
g	abrupt movement	hard surface/deapth	heavy/large/ coarse
s	smooth/gliding movement		light/small/fine
z	smooth/gliding movement		heavy/large/ coarse
h	breath		
m n	suppression/vagueness		
w Ø y	loud human/animal noise		

Palatalization means 'childishness' or 'excessive energy.'

Vowels control the semantic dimension of size and shape of affected areas as summarized below.

(4-105) /i/: Line and/or high-pitched sound.

/e/: Vulgarness.

/a/: Large area, totality of the object, or conspicuousness

/o/: Smaller area, inconspicuousness, or modestness.

/u/: Small protruded opening.

Diphthongization means 'easy circular movement around a joint.'

Vowel length contributes to the contrast of spatial or temporal length as below.

(4-106) Short: Spatially or temporally short.

Long: Spatially or temporally long.

Final consonants indicate directionality and force of the movement as below.

(4-107) /N/: Reverberation.

/Q/: Unidirectionally forceful.

/Ø/: Unilineality and absence of forcefulness.

The number of repetitions controls the dimension of phase as below.

(4-108) Single: One occurrence.

Twice: Consecutive occurrences.

Initial partial reduplication (cf. /pa-paQ/):
Speediness with a preparatory phase.

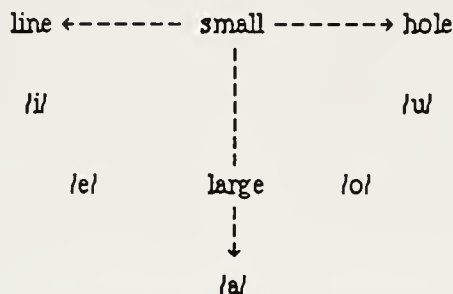
Final partial reduplication (cf. /pa'Q-pa/):
Roughness.

From an inspection of the above summary, it is clear that there are very close correlations between phonological features and semantic features in monosyllabic mimetic adverbs.

Kobayashi (1933) suggested that the size symbolism of the vowels was: /i/ < /e/ < /u/ < /o/ < /a/. According to Hirose (1981), Saito's experiment (1980) also resulted in this order of vowels, although she noted that the position of /u/ was not as stable as the other vowels. The above analysis, however, clarifies that the semantic contribution of vowels is not limited to size. Although it is certain that /a/ is related to the largest area, it is futile to try to place the five vowels in a unilineal scale in the manner of */i/ < /u/ < /o/ < /e/ < /a/ or */i/ < /u/ < /e/ < /o/ < /a/ since vowels relate to both size and shape. The semantic

configuration of the vowels is more accurately represented by the following. This shows that the semantic configuration of the vowels parallels their phonological configuration.

(4-109)



some of the sentences that we have previously dealt with in greater detail so that the complexity and richness of the sound-symbolic meanings in Japanese may be better understood.

Let us first look at (4-56a).

- (4-56) a. PuQto kuti kara tane o haki-dasi -ta.
mouth from seed Obj spit-get out-Past

'I puckered my lips and spit a seed out.'

Here, /puQ/ indicates that the lips were first tensely held and then abruptly released. It also indicates that at the time of releasing the occlusion, the lips formed a small round opening which, due to the previous tension, formed a protruded opening. It also indicates that the duration of this action was very short and that the action was forcefully carried out in one direction only once.

In this particular case, the translation more or less does justice to the original sentence. However, there are more cumbersome cases. Look back at (4-65a).

- (4-65) a. Hyoozyuu ga i -naku nar -u to GoN wa
Hyoju Sbj stay-Neg become-Pres when Gon Top
pyoito kusa no naka kara tobi -dasi -te...
grass Gen inside from jump-get out-and

'When Hyoju was gone, Gon hopped out of the grass
and ...'

In this, /pyoi/ indicates that Gon, the fox, abruptly jumped out childishly or very energetically. Furthermore, it indicates that the joints of the legs were involved to move legs sideways rather than upward to create a casual movement. The absence of /Q/ or /N/ indicates that the movement was completed quietly without a thump or bouncing. Thus, the above translation is far from doing justice to the total meaning of /pyoi'i/. In the translation, the latter two thirds of the meaning of /pyoi/ is lost; the difference between /pyoi/ and /pyoN/ is not indicated.

The problem, however, is not limited to this particular translation. Indeed, it would require a considerable amount of ingenuity to come up with a natural translation for (4-65) which would do justice to the semantic properties of /pyoi/. And even if this task were achieved, the translation would have to be much longer than the original Japanese sentence, or the information that the short mimetic adverb conveys would have to be somehow embedded in the larger context of the specific sentence.

Monosyllabic mimetic adverbs thus convey a large amount of information very concisely. Bisyllabic mimetic adverbs also make similar fine distinctions just as concisely. We shall look at bisyllabic mimetic adverbs in the next chapter.

CHAPTER 5 SOUND SYMBOLISM OF BISYLLABIC MIMETIC ADVERBS

5.1. Introduction

In Chapter 4, we dealt with monosyllabic mimetic adverbs. In this chapter, we will follow up the approach with bisyllabic mimetic adverbs. Here again, most of the examples are p-initial mimetic adverbs. Forms with other initial consonants which are unambiguously mimetic will supplement the analysis.

The bisyllabic mimetic adverbs that are dealt with here are those with the segmental shapes in (5-1) below and their expansions. The meaning of (y-) is explained in §6.1.2.

- (5-1) (y-)C₁V₁C₂V₂(V₂)Q, (y-)C₁V₁(Q)C₂V₂(V₂)N
 (y-)C₁V₁C₂V₂-C₁V₁C₂V₂Q, (y-)C₁V₁C₂V₂-C₁V₁C₂V₂N
 (y-)C₁V₁C₂V₂-C₁V₁C₂V₂
 (y-)C₁V₁C₂V₂N-C₁V₁C₂V₂N
 (y-)C₁V₁QC₂V₂ri, (y-)C₁V₁NC₂V₂ri

As in monosyllabic mimetic adverbs, C₁ stands for /p, b, t, d, k, g, h, s, z, m, n, w, (Ø), y/. C₂ stands for /p, b, t, d, k, g, h, s, z, m, n, w, y, r/. V₁ and V₂ stand for /i, e, a, o, u/. V₂V₂ stands for long vowels /ii, ee, aa, oo, uu/. The diphthongs /ai, oi, ui/ do not appear in bisyllabic mimetic adverbs in contrast to monosyllabic ones.

The primary semantic domains and features involved in each constituent part of bisyllabic mimetic adverbs are briefly summarized in the following.

- (5-2) C1: Tactile nature of the object. (§5.9.2)
 Voicing of C1: Massiveness, heaviness. (§5.8)
 Palatalization: Energy, noise and childishness. (§5.7)
 V1: First shape of the movement/object. (§5.6.3, §5.6.5)
 Medial /Q, N/: Intensification. (§5.4)
 C2: Type of the movement. (§5.9.1)
 V2: Second shape and size of the movement/object.
 (§5.6.2, §5.6.5)
 Vowel length: Length. (§5.5)
 Final elements: Final aspect. (§5.3)
 Repetition: Phase. (§5.2)

5.2. Repetition

5.2.1. Full Repetition

The contrast between a single CVCV and the multiplication of CVCV correlates with the semantic contrast of 'momentary or single movement' vs. 'continuous, distributed, or repetitive movement' as in the case of monosyllabic mimetic adverbs. See the following examples.

- (5-3) a. Masae wa patiN to te o tatai-te me o
 Masae Sbj hand Obj hit -and eye Obj
 kagayak-ase -masi-ta.
 shine -Caus-Pol -Past
 'Masae's eyes sparkled as she clapped her hands (once).'
- b. Tugi ni kai o biniru no hukuro ni ire-te
 next Adv clam Obj plastic Gen bag in put-and
 mekata o hakaQ-te hotikisu de patiN patiN to
 weight Obj weigh-and stapler with
 tome -masi-ta.
 snap on-Pol -Past

Next, she put clams in a plastic bag, weighed it, and
stapled [the top] in two places.'

- (5-4) a. Toogarasi ga sita ni piriQ to ki -ta.
hot pepper Sbj tongue to come-Past

'The hot pepper (momentarily) burned my tongue.'

- b. Hiyake si-ta tokoro ga piri-piri su-ru kara
sun burn do-Past place Sbj do-Pres because

aNmari kituku yar-anai-de ne.
so hard do -Neg-Ger Atten

'I have a (continuous) burning pain in the sun-burned
places. So, be careful not to rub too hard.'

- (5-5) a. Namida ga poroQ to kobore -ta.
tear Sbj roll down-Past

'A tear drop rolled down [the cheek].'

- b. Namida ga poro-poro kobore -ta.
tear Sbj roll down-Past

Tears rolled down [the cheeks].'

- (5-6) a. KoroQ to ikeN o kae -ta.
opinion Obj change-Past

'She entirely changed her opinion (once). = She did a
complete turnaround.'

- b. Koro-koro to yoku ikeN o kae-ru hito da.
often opinion Obj change-Pres

'She is always switching from one opinion to another. =
She is always changing her mind.'

- (5-7) a. SoNna tokoro ni dokaQ to kosi o orosi-te
such place at waist Obj lower-Ger

moraQ -tya koma -ru N
be given-GerTop be inconvenienced-Pres Comp

des -u.
CopPol-Pres

'You know you're not supposed to sit there like that (as if you owned the place.)'

- b. Yogoreta kutu de doka-doka to hairi -koN -de
soiled shoe with enter-push in-Ger
moraQ-te wa komar -u.
get -Ger Top be inconvenienced-Pres

'I am annoyed by the fact that you people are coming in continuously and rudely with dirty shoes. = Who do you think you are, coming in like this with dirty shoes?'

- (5-8) a. KusuQ to waraQ-ta.
laugh-Past

'She laughed (once) under her breath.'

- b. Kusu-kusu waraQ-ta.
laugh -Past

'She laughed (continuously) under her breath.

5.2.2. Partial Repetition

Like corresponding repetitions in monosyllabic mimetic adverbs, partial reduplication and multiplication of bisyllabic mimetic adverbs in the forms of /para-paraQ'/, /para-para-paraQ'/ and so on indicate that the event consists of short hastily executed movements and that the action is carried out forcefully, rushing, or vigorously. The following examples show the contrast between full reduplication, partial reduplication and partial triplication.

- (5-9) a. Sio o para-para to huQ -ta.
salt Obj sprinkle-Past

'I sprinkled salt all over.'

- b. Sio o para-paraQ to huQ -ta.
salt Obj sprinkle-Past

'I gave a quick sprinkle of salt (all over).'

- c. Sio o para-para-paraQ to huQ -ta.
salt Obj sprinkle-Past

'I gave a real quick sprinkle of salt (all over).'

Partial reduplication of the type */pataQ-pata/ which would correspond to /paQ-pa/ is non-existent in the data. While this type of partial reduplication in monosyllabic mimetic adverbs appears in a number of fixed expressions, all indicating 'hastiness' of some sort, there is no such fixed expression in bisyllabic mimetic adverbs.

5.3. Final Elements /N, Q, -ri/

The meanings of word-final /N, Q/ are identical to those in monosyllabic mimetic adverbs. /N/ indicates that the action involves elastic objects or is accompanied by a reverberation. /Q/ on the other hand indicates that the movement is carried out forcefully or vigorously in a single direction. In addition to these, which are common to both monosyllabic and bisyllabic mimetic adverbs, there is /-ri/, which is peculiar to bisyllabic mimetic adverbs. This element indicates 'quiet ending of the movement.' See below for the contrasts between /N/, /Q/, and /-ri/. Note that /N/ in (5-10a) relates to the elasticity of the knee.

- (5-10) a. Namida no tubu ga potaN to hiza no ue ni
tear Gen drop Sbj lap Gen top to

oti-masi-ta.
fall-Pol -Past

'A large tear drop fell on my knee.'

- b. Namida no tubu ga potaQ to tukue no ue ni
tear Gen drop Sbj desk Gen top to

oti-masi-ta.
fall-Pol -Past

'A large tear drop fell (from a high position) on the desk top and splashed.'

- c. Namida no tubu ga potari to tukue no ue ni
 tear Gen drop Sbj desk Gen top to
 oti-masi-ta.
 fall-Pol -Past

'A large tear drop fell (from a short distance) and sat
 on the desk top.'

Additionally, see the following for the contrast between /N/ and /Q/.

- (5-11) a. Hako no huta ga pakaN to ai -ta.
 box Gen lid Sbj open-Past

'The lid of the box popped open and sprang back a little.'

- b. Hako no huta ga pakaQ to ai -ta.
 box Gen lid Sbj open-Past

'The lid of the box popped open.'

Of /N, Q, -ri/, the first two elements exhibit clearly iconic ties between their phonological and semantic properties; apparently, the meaning of 'reverberation' in /N/ derives from the fact that it is a resonant 'redirected' to the nasal cavity as opposed to /Q/, an oral non-resonant. By contrast, it is difficult to identify such a straightforward iconic relation between the meaning of /-ri/ and its phonological characteristics. In other words, /-ri/ is better interpreted as a morpheme in the traditional sense than a sound-symbolic unit. Nevertheless, it is limited to the mimetic system.

5.4. Medial /Q, N/

Unlike monosyllabic mimetic adverbs, bisyllabic mimetic adverbs provide additional positions where /Q/ or /N/ is inserted.

Medial /Q/ is inserted between C_1V_1 and C_2V_2 of $C_1V_1C_2V_2$ '-ri and $C_1V_1C_2V_2N$ '. As explained in §2.2.2.2.2, C_2 generally must be a voiceless obstruent.

The meaning of medial /Q/ resembles that of final /Q/ in the sense that both relate to forcefulness. However, the meaning of 'unidirectionality' of final /Q/, which contrasts

with 'reverberation' of final /N/, is absent from medial /Q/. Therefore, formally speaking, we would treat medial /Q/ and final /Q/ as separate morphemes. In fact, this /Q/ is identified by Martin (1952) as an allomorph of the "intensive infix," which adds emphasis or liveliness to the discourse or it indicates the presense of additional force.

The following pairs show the contrast between mimetic adverbs with medial /Q/ and those without it.

- (5-12) a. Yagate yukute ni poQturi akari ga hitotu
 before long direction Adv light Sbj one
 mie -hazime-masi-ta.
 appear-begin -Pol -Past
 'Before long, a very tiny point of light appeared in the distance.'
- b. Yagate yukute ni poturi akari ga hitotu
 before long direction Adv light Sbj one
 mie -hazime-masi-ta.
 appear-begin -Pol -Past
 'Before long, a dim light appeared in the distance.'
- (5-13) a. PiQtari hamaQ-te hanare-nai.
 fit -and be freed-Neg
 'It's stuck so tight and won't move.'
- b. Pitari hamaQ-te hanare-nai.
 fit -and be freed-Neg
 'It's stuck tight and won't move.'
- (5-14) a. GaQsyaaN to osara ga ware-ta.
 plate Sbj break-Past
 'The serving plate crashed [to the floor] in a million pieces.'

- b. GasyaaN to osara ga ware-ta.
plate Sbj break-Past

'The serving plate [fell to the floor and] broke into pieces.'

Medial /N/ also functions as an intensifier, as in the following.

- (5-15) a. HuNwari ukaN-da kumo.
floating cloud

'Clouds that are floating very softly.'

- b. Huwari ukaN-da kumo.
floating cloud

'Clouds that are floating softly.'

Medial /N/ appears before all voiced consonants excluding /d/. This distributional characteristic of /N/ and its semantic resemblance to /Q/ lead us to conclude that /N/ is an allomorph of the intensifier morpheme to which medial /Q/ also belongs. However, it should be quickly added that medial /N/ is by far more restricted in its distribution than medial /Q/. It appears only between C_1V_1 and C_2V_2 of $C_1V_1C_2V_2$ -ri. Besides, it appears only in a small number of limited items, and none of them are p-initial; that is, medial /N/ does not appear in the most characteristically sound-symbolic mimetic adverbs. The list below exhausts all the cases of medial /N/ collected up to this point. Of these, only /huNwari/ has a counterpart without /N/ as we have already seen in (5-15). In other words, the majority of these mimetic adverbs with medial /N/ are fixed forms. Compared to the productivity of medial /Q/, the limited scope of medial /N/ is striking.

(5-16)	huNwari	'soft'
	yaNwari	'soft'
	doNyori	'dull'
	hiNyari	'cold'
	boNyari	'vague'
	noNbiri	'relaxed'

uNzari	'disgusted'
maNziri	'blinking'
zuNguri	'short'
aNguri	'openmouthed'
niNmari	'smirking'
tiNmari	'small'
guNnari	'exhausted'
guNnyari	'shapeless'
geNnari	'disgusted'
hoNnori	'lightly'

5.5. Vowel Length

Lengthening of the vowels in bisyllabic mimetic adverbs coincides with the location of the accent nucleus. Accented syllables may be long or short; unaccented syllables are always short.

Lengthening of the vowels is widespread in Class I and Class II bisyllabic mimetic adverbs. See §3.1. In Class V, it is a marginal phenomenon limited to a few exceptional forms in exceptional cases. Class IV bisyllabic adverbs hardly ever employ long vowels. Only in sing-song tunes do forms such as /paa'ta-pata/ appear.

The basic meaning of long vowels as opposed to short vowels is identical to that of long vowels in monosyllabic forms in that it iconically indicates the lengthening of the distance or duration involved in the movement. See the following for the contrast between the long vowel and the short vowel.

- (5-17) a. Doa o pataN to sime -te de -te iQ-te simaQ-ta.
 door Obj close-and exit-Ger go-Ger finish-Past
 'She went out the door, slamming it behind her.'

- b. Doa o pataaN to sime -te de -te iQ-te simaQ-ta.
 door Obj close-and exit-Ger go-Ger finish-Past

'With all her might she slammed the door (which was wide open) behind her and left.'

- (5-18) a. SupoN to koruku ga nuke -ta.
 cork Sbj come off-Past

'The cork came off with a (light) pop.'

- b. SupooN to koruku ga nuke -ta.
 cork Sbj come off-Past

'The cork came off with a (forceful and long) pop.'

The examples below in (5-19) through (5-23) show the semantic range of long vowels which extends from 'long distance/long duration' to 'sluggishness/slowness' and 'forcefulness/emphasis.'

- (5-19) DosuuN to oti -te ki -te booN to iti -meetoru
 fall-Ger come-and one-meter

gurai hane-aga -ru N des-u yo.
 about jump-go up- Pres Comp Cop-Pres Emph

'[The hail] would come crashing down (all the way) and bounce up as high as a meter.'

- (5-20) Baka na N da yo ne, kono ko.
 stupid Cop Comp Cop Emph Atten this child

Oyu no naka ni kao o tuQ-koN-de
 hot water Gen inside in face Obj push in -and

pukaaQ to osiri dake ukabe -te siN-da
 bottom only let float-and die-Past

huri si-te -ru N da kara.
 pretence do-Ger-(Cont)-Pres Comp Cop because

'He is so stupid. He floated face down in the tub water with his back side sticking up like he was dead.'

- (5-21) Adenoido tokuyuu no pokaaN to kuti o
 adenoids peculiarity Gen mouth Obj

 ake-ta kaotuki.
 open-Past facial expressions

 'Facial expressions peculiar to children with adenoids,
 whose mouth always hangs wide open. (giving them a
dull look).'
- (5-22) BaQsyaaN te waQ te nioi dake nokosi-te
 break-and smell only leave-and

 kaeQ -te ki -ta koto aQ -ta zya nai.
 come home-Ger come-Past incident exist-Past Top Neg

 'Do you remember once you dropped and splashed all
over you [the bottle of "Napoleon" you carried] and you
 came home empty-handed with just the smell of
 brandy?'
- (5-23) ... paN-ko no yoo na yuki ga huwaaQ to
 bread crumb Gen like Cop snow Sbj

 kogitune ni oQkabusaQ-te ki -masi-ta.
 baby fox to cover up -Ger come-Pol -Past

 '... powdery snow fell very softly onto the baby fox.'

5.6. Vowels

5.6.1. The First Vowel and the Second Vowel

In §4.6, the vowels /i, a, o, u/ of monosyllabic mimetic adverbs were shown to indicate size/shape. It was also shown that /e/ indicates 'vulgarness.' The semantic roles of the vowels /i, e, a, o, u/ in bisyllabic adverbs are similar to their roles in monosyllabic adverbs.

The combinations of V1 and V2 are as below.

(5-24)

	V2	i	e	a	o	u
V1						
i		-i-i	-i-e	-i-a	-i-o	-i-u
e		-e-i	-e-e	-e-a	-e-o	-e-u
a		-a-i		-a-a	-a-o	-a-u
o		-o-i	-o-e	-o-a	-o-o	-o-u
u		-u-i	-u-e	-u-a	-u-o	-u-u

5.6.2. The Sound-Symbolism of V₂

In this section, we will consider the semantic contribution of the vowels in the second syllable. This will show that the second vowel primarily represents the size and shape of the object or movement. The following sentences show the contrasts between /a/, /o/, and /u/ in the second syllable in terms of the size.

- (5-25) a. Namida no tubu ga potaQ to oti-masi-ta.
 tear Gen drop Sbj fall-Pol -Past
 'A (large) tear drop fell and spread in a large patch.'
- b. Zyaguti kara potoQ to mizu ga oti-ta.
 faucet from water Sbj fall-Past
 'A drop of water fell from the faucet.'
- c. Ame ga atama ni potuQ to oti-te ki -ta
 rain Sbj head to fall-Ger come-Past
 to omoQ-ta N da kedo.
 Quot think-Past Comp Cop but
 'I thought I felt a (small) rain drop on my head.'

In the above examples, the drop of liquid in (5-25a) is the largest; the tear spreads in a patch after it falls. The size of the liquid in (5-25b) is neither as large as in (5-25a) nor as small as in (5-25c). In (5-25c), the drop is very small and almost unnoticeable. While

/potaQ to/ and /potoQ to/ in (5-25a) and (5-25b) are interchangeable, the context of (5-25c) constrains the choice to /potuQ to/. The following would be unacceptable to most native speakers.

- (5-26) *Ame ga atama ni potaQ to oti -te ki -ta
 rain Sbj head to fall-Ger come-Past
 to omoQ-ta N da kedo.
 Quot think-Past Comp Cop but
 'I thought I felt a (large) rain drop on my head(?).'

If one narrows the context for the mimetic adverb further so that the size is distinctly indicated, any deviation is even more ridiculous. The sentence in (5-27) is unacceptable for this reason.

- (5-27) *Ootubu no namida ga potuQ to oti-masi-ta.
 large drop Gen tear Sbj fall-Pol -Past
 'A large small drop of tear fell(?).'

The same contrasts in terms of size are observed in the following pairs.

- (5-28) a. Ana ga pokaQ to ai -ta.
 hole Sbj open-Past
 'All of a sudden, a large hole opened up.'
- b. Ana ga pokoQ to ai -ta.
 hole Sbj open-Past
 'All of a sudden, a hole opened up.'
- (5-29) a. Kono kutu mada Aya ni wa ooki-sugi -te
 this shoe still Aya for Top big -excessive-and
pa'ka-paka si -te -ru wa.
 do-Ger-(Cont)-Pres Emph
 'These shoes are still a little too big for Aya, and she
walks out of them.'
- b. MiNna ni me no mae de oisii mono o
 all by eye Gen front in delicious thing Obj
paku-paku tabe-rare-te wa zisiN wa nai.
 eat -Pass-Ger Top confidence Top not exist

I am not so sure [if I can stick to my diet] if I have to
 watch everybody around me eating vigorously
 (=enjoying their meal).'

- (5-30) a. Eigo de pera-pera hanasi-kake-rare biQkuri
 English in talk -start-Pass surprise
 si-masi-ta.
 do-Pol -Past

'[The man] started to speak to me in English so fast, and
 I was speechless.'

- b. Amerika de wa dai no otoko ga aisukuriimu o
 America in Top adult man Sbj icecream Obj
pero-pero name-te i -ru huukei ni yoku
 lick -Ger Cont-Pres scene to often
 deai-mas-u.
 meet-Pol-Pres

'In the US, we often encounter a scene where a grown
 man is licking icecream.'

In (5-30a) above, /paka-paka/ indicates that the space between the foot and the shoe is large. In (5-30b), /paku-paku/ describes the movement of the mouth. The opening for (5-30b) is smaller than that in (5-30a).

Above in (5-30), both /pera-pera/ and /pero-pero/ describe the movement of the tongue, but /pera-pera/ in (5-30a) describes a fast manner of speaking in which the tongue moves all over the mouth, while /pero-pero/ in (5-30b) describes the continuous movement of the tip of the tongue to lick a small area. Thus, /pero-pero/ refers to a more spatially restricted movement than /pera-pera/, and the difference is attributed to the vowels /o/ and /a/ in the second syllable. The following also supports this analysis.

- (5-31) a. Inazuma ga yozora ni pikaQ to hikaQ-ta.
 lightning Sbj night sky in shine-Past

'The lightning lit up the night sky.'

- b. Uki ga pikuQ to ugoi -ta.
float Sbj move-Past

'The (thin) fishing float bobbed once.'

Note that the area lighted up in (5-31a) is a large expanse of the sky. The area involved in (5-31b), on the other hand, is the tip of the float, a mere half inch or so.

We have seen that in the monosyllabic adverbs the vocalic symbolism involves not only the size but also the shape; that is, the smallness of /u/ is accompanied by the meaning of 'protrusion,' while 'expansiveness' of /a/ is accompanied by the meaning of 'flatness.' The same thing can be said about the vocalic symbolism of the second syllable in bisyllabic mimetic adverbs. In (5-30b) above, /u/ of /paku-paku/ may be interpreted to describe the movement of a protruding part of the body, the lip. Also, /pikuQ/ in (5-31b) may be interpreted to describe a protruding object, the float. On the other hand, /pikaQ/ in (5-31a) may be interpreted to indicate the perceptual flatness of the sky.

The form symbolism of V₂ becomes clear when we contrast /u/ and /i/ in that position. See the following.

- (5-32) a. PotuQ to nikibi ga de -te ki -ta.
pimple Sbj exit-Ger come-Past

'A small pimple came out. = I've got a small pimple.'

- b. PotiQ to sobakasu ga deki -ta.
freckle Sbj form-Past

'A small freckle formed. = I've got a small freckle.'

Both /potuQ/ and /potiQ/ refer to small dots, but more specifically the former refers to a protruded point like a pimple, while the latter refers to a flat dot like a freckle.

There is another semantic feature that recurs with /i/ and is absent from /a, o, u/ in the second syllable. This is the meaning of 'thinness, slenderness, sharpness, and tenseness.' See the following examples.

- e. Gaikoku de wa niNziN o nama no mama
foreign country in Top carrot Obj raw Gen as it is

eNpitu-zyoo ni kiQ-te kodomo ni pori-pori to
pencil-mode in cut-and child to

tabe-sase-ru.
eat -Caus-Pres

'In foreign countries, people cut fresh carrots into
sticks and have children bite into these crisp sticks.'

- f. Sugu puri-puri su-ru.
soon do-Pres

'He gets angry easily.'

- g. Pisi-pisi kitae-te kudasai.
train-Ger please

'Please drill them hard.'

Note that the semantic component of 'sharpness/tenseness' common in above examples is not the attribute of initial /p/. For example, contrast (5-33d) with the following.

- (5-34) Siage ni syooryoo no baziru o para-para to
finish Adv small amount Gen basil Obj

huri -kake -mas-u.
shake-cover-Pol-Pres

'Lastly, sprinkle a small amount of basil over it lightly.'

In (5-33d), /pari-pari/ indicates the crispness of the skin of fried chicken, a kind of tenseness. In (5-34), on the other hand, no such 'tenseness' is implied; /a/ in the second syllable there indicates the expansiveness or flatness of the involved area.

Mimetic adverbs with initial consonants other than /p/ do not exhibit the vocalic symbolism of the second syllable vowels so clearly as p-initial forms, because minimally contrastive pairs are very rare. Nevertheless, we can cite examples where such symbolism operates. See the following.

- (5-35) a. Atuko wa eki no kaidaN-sita de osiri
 Atsuko Top station Gen foot of stairs at bottom

beQtari to subeQ-te korob-i omowazu
 slip-and fall -and involuntarily

"Iya da wa. SubeQ-tyaQ -ta." to koe o
 my goodness fall -end up-Past Quot voice Obj

dasi-ta N des-u Qte.
 emit-Past Comp Cop-Pres Quot

'Atsuko says that she slipped and fell flat on her

bottom at the foot of the stairs at the railroad station

[because of the icy snow] and blurted out, "Oh, no. I
 slipped."

- b. Kami no ke ga ase de beQtari si-te i -ru.
 hair Gen hair Sbj sweat with do-Ger Cont-Pres

'My hair is slicked down with sweat.'

In (5-35a) above, /a/ of /beQtari/ indicates 'flat contact.' Such a sense of 'flatness' is absent from (5-35b). Another illuminating example is the following.

- (5-36) a. Tokoroga deki-agaQ-ta animeesyoN wa
 but come out -Past animation Top

tika-tika to si-te taiheN mi-nikui mono daQ-ta.
 do-and very see-hard thing Cop-Past

'However, the animation that I finished flickered, and it
 was very hard to see.'

- b. Onaka ga tiku-tiku ita -i.
 stomach Sbj painful-Pres

'I have a pricking pain in the stomach.'

The vowel /a/ of /tika-tika/ in (5-36a) can be interpreted to refer to the irradiation of light, a kind of expansion. The vowel /u/ of /tiku-tiku/ in (5-36b) on the other hand refers to the needle-like sensation, a movement of a projected object. This meaning is entirely absent in (5-36a).

Below, the contrast between (5-37a) and (5-37b) is parallel to the contrast between (5-29a) and (5-29b). In both cases, /a/ is related to a large space; /u/, on the other hand, is related to the movement of the mouth, a small protruded opening.

- (5-37) a. Kono huku gaba-gaba si-te -ru.
 this clothes do-Ger-(Cont)-Pres
 'This suit is too big for me, and I'm swimming in it.'
- b. SoNna ni mizu gabū-gabū noN-dara onaka
 so Adv water drink-if stomach
 kawas-u yo.
 break-Pres Emph
 '[I'm afraid] you'll get a stomach-ache if you keep
 gulping down so much water.'

The semantics of /i, a, o, u/ in the second syllable, then, is summarized in the following way.

(5-38)

/i/ = +tense, +small, -large, -protrusion

/a/ = -tense, -small, +large, -protrusion

/o/ = -tense, -small, -large, -protrusion

/u/ = -tense, +small, -large, +protrusion

So far, we have omitted the discussion of /e/ in the second syllable. Just as in monosyllabic mimetic adverbs, /e/ in the second syllable of bisyllabic mimetic adverbs indicates 'inappropriateness' or 'vulgarness,' a meaning distinct from those of /i, a, o, u/ which makes it hard to classify /e/ along the same lines as other vowels. See the following.

- (5-39) a. Pote-pote to hutoQ-ta simari no nai
 fat fitness Gen absent
 yoosyoku-gyo.
 cultured-fish
 'Farmed fish that have grown to be fat and unfit.'

- b. Nani ga okoQ -ta no ka wakar -anaku-te
 what Sbj happen-Past Comp Inter understand-Neg -and
pokeQ to mi -te i -ta.
 watch-Ger Cont-Past

'Not realizing what had happened, he stood there with a stupid look.'

- c. Dere-dere si-nai-de.
 do-Neg-Ger

'Don't hang around doing nothing.'

- d. Kose-kose okane o tame-temo syoo ga nai.
 money Obj save-if use Sbj absent

'It won't do any good to keep saving so small an amount of money. = It's a waste of time trying to get ahead by saving pennies.'

- e. Buta usi no kawa ya zoomotu ga goQteri
 pig cow Gen hide and entrails Sbj

haiQ -te guNnyari si-ta tokoro ga huhyoo.
 enter-and soft aspect Sbj unpopular.

'[The dish is] unpopular because it has too much skin and too many livers of pigs and cows and it is mushy.'

- f. Ano hito naN demo zuke-zuke kii-te heeki na
 that person anything ask-and nonchalant Cop

no yo nee.
 Comp Emph Atten

'She asks any question no matter how brash, doesn't she?'

In all above examples, some kind of 'inappropriateness' is present in the interpretations of the sentences, and the only element common to all of them is the second vowel /e/.

5.6.3. The Sound-Symbolism of V₁

We will now consider the semantic contribution of the vowels in the first syllable. This will show that the first vowel generally represents 'form.' See the following first.

- (5-40) a. Suika ga pakaQ to maQ-putatu ni ware-ta.
watermelon Sbj sheer-two to break-Past

'The watermelon split (wide open) in half.'

- b. Suika ni pokaQ to ana ga ai -ta.
watermelon in hole Sbj open-Past

'He knocked a large hole in the watermelon.'

- c. Suika ga pukaQ to ukaN -de ki -ta.
watermelon Sbj float-Ger come-Past

'The watermelon shot up to the surface of the water.'

- d. Suika ga pikaQ to hikaQ-ta.
watermelon Sbj shine-Past

'Light glimmered on the shiny surface of the watermelon.'

The vowel /a/ in the first syllable of /pakaQ/ of (5-40a) above refers to the flat surface of the split melon. The vowel /o/ of /pokaQ/ in (5-40b) refers to a hole, a round depression. Also recall that /pokaQ/ and /pokoQ/ in (5-28) are related to holes of different sizes. In these, the first vowel clearly refers to the shape while the second vowel defines the size.

The mimetic adverb /pukaQ/ in (5-40c) refers to the floating action. Consider also that /pukuQ/ is used to describe surfacing of a bubble or swelling. The meaning of 'protrusion' therefore is attributed to the common initial vowel /u/.

The adverb /pikaQ/ in (5-40d) seems to refer to a line in the form of a ray of light or a kind of 'sharpness.' Recall that /pikuQ/ in (5-31b) and /tikuQ/ in (5-36b) are related to thin fishing floats and needles respectively, both of which are thin and long.

The contrast between /a/ and /o/ in the first syllable is seen in the following pair, too.

- (5-41) a. Pata-pata to amerika no koQki ga hirugaeQ -te
 America Gen flag Sbj turn in wind-Ger
 i -ru no ga mie -mas-u.
 Cont-Pres Comp Sbj appear-Pol-Pres
 'You can see an American flag flapping in the wind.'
- b. NiNsiN si-tara kyuu ni tabe-ru tabi ni ase
 pregnancy do-when suddenly eat-Pres time at sweat
 ga pota-pota oti-ru yoo ni naQ -te
 Sbj fall-Pres state to become-Ger
 simai-masi-ta.
 end up-Pol -Past
 'After I got pregnant, I started to sweat every
 time I ate so that large beads of sweat would fall.'

In (5-41a) above, /a/ in the first syllable is related to the flatness of a flag, while in (5-41b), /o/ in the same position is related to the round shape of the beads of sweat.

The above semantic characterization of the first-syllable vowels as representing the shape of the object or of the movement is also supported by the following summary of the things used with /piri-piri/, /pari-pari/, /pori-pori/ and /puri-puri/.

- | | | |
|-----------|-----------|--|
| (5-42) a. | piri-piri | nerves; electricity; acute sensation |
| b. | pari-pari | crisp flat Japanese rice crackers;
crisp sliced pieces of turnip pickles,
stiffly starched cotton summer
kimono; crisp cooled lettuce |
| c. | pori-pori | crisp whole cucumbers; roasted
peanuts |
| d. | puri-puri | being angry with pouted lips |

As we have already seen, the second vowel /i/, common to all the above forms, indicates 'tenseness.' It then is reasonable to interpret that /i/ in the first syllable refers to something that runs along a line, /a/ to flat objects, /o/ to roundish objects, and /u/ to protruding objects.

Beyond p-initial adverbs, minimal pairs with different first-syllable vowels are again limited. Still, we can cite the following pair.

- (5-43) a. DeNki ga tika-tika si-te mabusi-i.
light Sbj do-and glaring-Pres
'The light flickers and annoys me.'
- b. HeNna hito ga tuka-tuka haiQ -te ki -te
strange person Sbj enter-Ger come-and
toire ni suwari-koN -da.
bathroom in sit -settle-Past
'A stranger came into [our apartment], walked straight
into the bathroom without a word, and sat down there.'

The mimetic adverb /tika-tika/ in (5-43a) above is used to describe flashing or flickering such as automobile turn signals and old-type fluorescent lamps. Note that /pika-pika/ and /kira-kira/ also are used to describe certain kinds of light. /Pika-pika/ is used to describe the reflection of light from shiny objects or bursting lights such as lightning. /Kira-kira/ describes twinkling or shimmering lights from objects such as stars and precious gems.

There are other mimetic adverbs that describe certain kinds of light. For instance, /boyaQ/ and /poka-poka/ both describe light. See the following for their use.

- (5-44) a. boyaQ to si-ta hikari
do-Past light
'dim, obscure light'
- b. poka-poka si-ta hizasi
do-Past sunshine
'warm sunshine'

The above examples show that when a reference is made to an obscure, ill-defined light, /o/ appears instead of /i/ in the first syllable. A monosyllabic mimetic adverb with /o/ which describes light also has the same meaning of 'obscurity,' as below.

(5-45) booQ to si -ta hikari
do-Past light

'dim, indistinct light'

Recall that /o/ in monosyllabic mimetic adverbs was demonstrated to have the meaning of 'inconspicuousness.' The meaning of 'obscurity' or 'ill-definedness' agrees with this. By contrast, /i/ in the first syllable of /kira-kira/, /tika-tika/, and /pi'ka-pika/, all of which describe light, is considered to refer to 'well-defined ray of light.' This agrees with the more general meaning of /i/ which we posited before, namely, 'line.'

Going back to (5-43b) above, the first vowel of /tuka-tuka/ indicates 'straight-forward, unhesitant proceeding.' Again, we can relate this to the meaning of /u/, 'protrusion,' as opposed to that of /i/, 'line.'

The following triplet also shows the contrasts between the first vowels /i, a, u/.

- (5-46) a. Kusa ga kira-kira kagayai-te i -mas-u.
grass Sbj shine -Ger Cont-Pol-Pres
'The grasses are shimmering [in the sun].'
- b. Kaza-guruma ga kara-kara to mawaQ-te i -ru.
toy windmill Sbj spin -Ger Cont-Pres
'A toy windmill is spinning and (lightly) rattling.'
- c. Monosugoi hitogomi de ni -zikaN mo
awful crowd Cop two-hour as much as
i-ru to atama ga kura-kura si-te ku -ru
stay-Pres head Sbj do-Ger come-Pres
kaNzi desi-ta.
feeling Cop-Past
'It was so crowded that after two hours there I started
to feel as if my head was spinning.'

As has been explained, /kira-kira/ in (5-46a) above describes shimmering light; /i/ seems to refer to sharpness of the image. The adverb /kara-kara/ in (5-46b) is used to describe the spinning motion of a light thin object such as the windmill or a dry large leaf. Thus, /a/ again refers to the flatness of the object involved. The adverb /kura-kura/ in

(5-46c) describes the "spinning" sensation of the head. The meaning of /u/ in this case may not be apparent. A similar form /kuru-kuru/ is used to describe the spinning of a wheel or gyro, which certainly has a protruding point, on a pivot or spindle. We can say that /kura-kura/ is a metaphor based on the image of a spinning and pointed object and that /u/ of /kura-kura/ in this sense also indicates 'protrusion.'

To summarize, the first vowels /i, a, o, u/ are tied to the semantic domain of shape as follows.

(5-47)

/i/= line

/a/= flat plane

/o/=round object

/u/= protrusion

The vowel /e/ in the first syllable has been omitted from the above discussion. It indicates 'inappropriateness' or 'vulgarness' just as in the second syllable. See the following examples.

(5-48) a. Syatyoo to wakaQ-te awate -te peko-peko
 president as prove-and be dismayed-and

ozigi o si-ta ga moo osokaQ-ta.
 bow Obj do-Past but already late -Past

'After realizing that the woman was the president of
 the company, I hurriedly bowed (many times)
apologetically with dismay, but it was too late.'

b. Ano inu pero-pero name-ru no yo nee.
 that dog lick -Pres Atten Emph Atten

'That dog licks you (repeatedly), you know.'

c. pera-pera si-ta kami
 do-Past paper

'cheap thin paper'

- d. Te ga peta-peta si-te -ru.
hand Sbj do-Ger-(Cont)-Pres

'My hands are sticky. = I've got sweaty palms.'

- e. Kono ame siQke -te peto-peto si-te -ru.
this candy get wet-and do-Ger-(Cont)-Past

'Because of the humidity, these candies have started to melt and they've gotten goopy.'

All of the above examples exhibit the feature of 'cheapness' or 'stickiness.' One of them, /pera-pera/, however, is often used to describe fluency in foreign languages as in (5-30a) and (5-49) below.

- (5-49) Ano hito wa pera-pera to huraNsu-go o
that person Top French Obj
hanasi-mas-u.
speak - Pol-Pres

'She is fluent in French.'

Since having a full command of a foreign language is neither vulgar nor inappropriate in present Japanese, the generalization on /e/ may seem to fail here. Note, however, that /pera-pera/ is used only when the speech in a foreign language is unintelligible to the person who is making these statements. An excellent orator's speech, which is intelligible to a native speaker, is not described with this mimetic adverb. A native speaker's speech is described with /pera-pera/ only if it is considered to be a needless and meaningless chatter as below. Thus, the vowel /e/ in /pera-pera/ connotes 'frivolousness' or 'insignificance' of the speech from the point of view of the native speaker.

- (5-50) Yokee na koto o pera-pera pera-pera
unnecessary thing Obj
hanas-anai-de.
talk -Neg -Ger

'Stop chattering (about needless things).'

Bisyllabic mimetic adverbs with initial consonants /t/ and /k/ also present good examples of initial /e/ with the meaning of 'inappropriateness.' See the following.

- (5-51) a. Hito-mukasi-mae ni wa taitee no syoogakusee ga
 a decade ago Adv Top most Gen pupil Sbj
 huyu ni nar -u to uwagi no sode-guti
 winter to become-Pres when jacket Gen sleeve-mouth
 o teka-teka to hikar-ase -te i -ta mono da.
 Obj shine-Caus-Ger Cont-Past Comp Cop
 'A decade or two ago, when winter came, you could see
 most primary school children's jacket's cuffs glitter
 [with dried mucus as they wiped their noses with them].'
- b. Kera-kera waraQ-te bakari i -ru.
 laugh-Ger only Cont-Pres
 'They do nothing but laugh stupidly.'

In the above, /teka-teka/ describes a glittering, tasteless shine. The adverb /kera-kera/ describes a stupid frivolous manner of laughing. The meaning of 'inappropriateness' or 'vulgarness' is clearly present here, too.

5.6.4. Functional Differences between V₁ and V₂

In the previous sections, we have identified the meanings of V₁ and V₂. Let us repeat the summary here.

(5-52)

V ₁ =	/i/: line
	/e/: inappropriateness
	/a/: flat plane
	/o/: roundish object
	/u/: protrusion

(5-53a), /pakuQ/ indicates that the mouth is first opened and next shut; /a/ refers to the opening and /u/ to the closed lips. In (5-53b), on the other hand, /pukaQ/ means that the object first pushes up through the water to the surface and spreads out on the surface; it is used to describe the floating of a large object up to the surface such as a round rubber float or a watermelon. The first vowel /u/ then is interpreted to refer to the protruding movement and the second vowel /a/ to the resultant condition. Thus, these two examples are cases of (i).

Next see the following use of the pair /pira-pira/ and /pari-pari/.

- (5-54) a. Huku no suso kara ito ga pira-pira
clothes Gen hem from thread Sbj

mie -ru.
appear-Pres

'I see a thread swaying all over from the hem of the
dress.'

- b. Retasu pari-pari, kyuuri pori-pori.
lettuce cucumber

'(I eat) crisp lettuce and cucumbers with crunching
sound.

In (5-54a) above, /pira-pira/ means that the thin object, a thread, moves around a wide area; that is, the first vowel /i/ refers to the shape of the object and the second vowel /a/ to the size/shape of the area affected by its movement. This is a case of (ii). In (5-54b), on the other hand, /pari-pari/ means that the object, lettuce, is thin and crisp. Note that the shape of the object is indicated by the first vowel /a/ and that the second vowel indicates the tenseness of the object. This is a case of (iii).

The following examples also show a contrast parallel to that in (5-53) and (5-54) above.

- (5-55) a. Kari-kari to oseNbee o kaziQ-ta.
rice cracker Obj nibble-Past

'I nibbled at a crunchy rice cracker.'

- b. Kira-kira hosi ga mabatak-u.
star Sbj blink -Pres

'The stars twinkle.'

The mimetic adverb /kari-kari/ in (5-55a) above means that one bites at a flat surface of a crunchy object. The vowel /a/ again means 'flatness' and /i/ 'tenseness.' The mimetic adverb /kira-kira/ in (5-55b) means that narrow lines, rays of starlight, spread around; /i/ thus means the shape of the object and /a/ the shape/size of the radiation.

The other example sentences used so far corroborate the view presented here. For example, take /tuka-tuka/ in (5-43b). It means that someone proceeds inside and settles down audaciously. The symbolism of the first vowel /u/, 'protrusion,' is manifested in the sense of 'moving forward. The symbolism of the second vowel /a/, 'expansion,' is manifested in the sense of 'occupying a large space.' The order of the vowels is iconically meaningful, for 'moving forward' is followed by 'occupying a large space.'

5.6.5. Secondary Symbolism of /o/

In the preceding section, we have identified the primary sound-symbolic values of vowels. To accomplish this task, we have largely omitted any discussion of derivative semantic features which are customarily associated with certain vowels. In this section, we will look at the secondary symbolism of the vowel /o/.

The semantic feature of 'modestness' of /o/ has been identified in monosyllabic mimetic adverbs. The vowel /o/ in bisyllabic mimetic adverbs also exhibits this feature consistently. It is in clear contrast with /a/, which often signifies 'colorfulness' or 'showiness.' See the following examples.

(5-56)	a.	tyoro-tyoro to	'in trickles'
		tyoro-tyoro suru	'to move around restlessly like a rat'
	b.	tyara-tyara to	'in a flashy fashion'
(5-57)	a.	tyoko-tyoko to	'moving like a small child'
	b.	tyaka-tyaka to	'restlessly and noisily'
(5-58)	a.	koso-koso to	'stealthily'
	b.	kasa-kasa to	'with the noise of thin and dry objects such as dry leaves'
(5-59)	a.	pokoQ to	'unexpectedly'
	b.	pakaQ to	'forming a large opening'
(5-60)	a.	boso-boso hanasu	'to talk in a subdued voice'
	b.	basa-basa	'with loud rustling noise'

Other forms do not have contrastive counterparts with /a/. Nevertheless, we can identify the semantic feature of 'modestness' in these. The events or objects in (5-61) below are in one way or another modest, unremarkable, unnoticeable, shabby, indistinct, or unsophisticated.

(5-61)	tobo-tobo aruku	'to drag one's feet'
	moso-moso taberu	'to eat without vigor'
	mozo-mozo suru	'to tingle one's sensation without being identified'
	noko-noko dete kuru	'to appear nonchalantly'
	oro-oro suru	'to move around or behave nervously and timidly'
	odo-odo suru	'to be scared and nervous'
	yoro-yoro to aruku	'to walk tottering, reeling'
	yobo-yobo to	'being old and shabby'
	hyoko-hyoko to	'casually, unexpectedly'
	kyoto-kyoto mimawaru	'to look around nervously'

kyoro-kyoro suru	'to move around restlessly'
syobo-syobo suru	'to blink with tired eyes; to drizzle (=rain)'

It will be noticed that the secondary sound symbolism of /o/ is based upon the perception of /a/ and /u/ as cardinal vowels; since /o/ is between these cardinal points, it is perceived as having no distinct characteristics.

5.7. Palatalization

As in monosyllabic mimetic adverbs, palatalization in bisyllabic mimetic adverbs means 'childishness' and 'excessive energy.' See (5-14) and (5-22), for instance. For a detailed discussion of palatalization in the system of Japanese mimetic adverbs, see §6.1.

5.8. Voicing Contrast of Obstruents

5.8.1. The Location of Voicing Contrast

In monosyllabic mimetic adverbs, there is only one location where voiced and voiceless obstruents can contrastively appear; namely, in initial position. We have identified the meaning of voiced obstruents in monosyllabic mimetic adverbs as 'heavy/large /coarse/thick.'

In bisyllabic mimetic adverbs, on the other hand, there are two locations where voiced and voiceless obstruents can make phonological contrasts. Of these two, the role of voicing in initial obstruents is no different from that in monosyllabic mimetic adverbs. It means 'massiveness' of some kind. The role of voicing in the second-syllable obstruents, however, is markedly different from that in the first-syllable obstruents. We will first deal with the role of voicing of first-syllable obstruents in this section.

5.8.2. Voicing of C₁

The voicing contrast of first obstruents is highly systematic. For almost all combinations of voiceless obstruents as C₁ and other consonants as C₂, there are parallel combinations with the voiced counterparts of C₁. See the following.

(5-62)

	<u>example</u>	
p-w- b-w-	puwa-puwa buwa-buwa	light floating object large floating object
p-y- b-y-	piyo-piyo biyo-biyo	peeping noisy peeping
p-r- b-r-	puri-puri buri-buri	being angry being very angry
p-t- b-t-	pota-pota bota-bota	drop of thin liquid drop of thick liquid
p-s- b-s-	poso-poso boso-boso	dry separate rice coarse dry rice
p-k- b-k-	piku-piku biku-biku	quivering trembling
t-y- d-y-	tuya-tuya doya-doya	shiny object a large group of people come in
t-r- d-r-	tara-tara dara-dara	thick clear liquid thick murky liquid
t-p- d-p-	toQpuri doQpuri	soaked entirely soaked entirely
t-d- d-b-	tobo-tobo dobo-dobo	moping pouring a large amount of liquid
t-k- d-k-	tuka-tuka doka-doka	walking in unhesitantly walking in a large group
k-w- g-w-	kuwaQ guwaQ	opening the mouth wide opening the mouth wide
k-y- g-y-	kuyo-kuyo gaya-gaya	worrying noisily
k-r- g-r-	kura-kura gura-gura	feeling dizzy shaking violently

k-p- g-p-	kiQpari gaQpori	firmly greedily
k-b- g-b-	keba-keba gobo-gobo	gaudily the sound of bubbly water
k-t- g-t-	koto-koto goto-goto	cluttering noise cluttering noise of a heavy object
k-s- g-s-	kasa-kasa gasa-gasa	the sound of dry leaves the sound of coarse paper
k-k- g-k-	kuQkiri goku-goku	clearly gulping down water
k-n- g-n-	kune-kune gunyaQ	winding bending
s-w- z-w-	sawa-sawa zawa-zawa	the sound of a breeze the bustle of a croud
s-r- z-r-	sara-sara zara-zara	the sound of a small stream the texture of coarse paper
s-p- z-p-	suQpori zuQpori	covered entirely covered entirely
s-b- z-b-	saba-saba zabu-zabu	straight-forward personality washing vigorously
s-t- z-t-	sito-sito zito-zito	soft rain humidity
s-k- z-k-	saku-saku zaku-zaku	the texture of snow chopping

The exceptional cases that lack parallel combinations are only the following three.

(5-63)	<u>example</u>	
s-y- *z-y-	soyo-soyo	breeze
d-t- *t-t-	dotaQ	thump
d-s- *t-s-	dosiN	thump

Of the parallel combinations in (5-62) above, about two-thirds of them actually produce minimal pairs that differ only in the feature of voicing. Moreover, most of those

pairs differ semantically only as to the meaning of 'weight/mass.' See the following, for example.

- (5-64) a. Ame ga para-para huQ-te ki -ta.
rain Sbj fall-Ger come-Past
'It started to sprinkle (as small drops).'
- b. Hyoo ga bara-bara to huQ-te ki -ta.
hail Sbj fall-Ger come-Past
'It started to hail (as relatively heavy pieces).'
- (5-65) a. Kiku no ha o teNpura ni si-te
chrysanthemum Gen leaf Obj deep frying to do-and
age-ru to pariQ to su-ru.
fry-Pres when do-Pres
'When you deep-fry chrysanthemum leaves [with the batter of tempura], they will come out crisp.'
- b. HiQpaQ-tara rawaN no usui ita ga bariQ to
pull -when lauan Gen thin board Sbj
ore -ta.
break-Past
'When I pulled the thin lauan board, it suddenly tore off.'

In both of the above cases, the contrast relates to the weight or mass of the objects involved. The contrast is not limited to /p/ and /b/, of course. The following is an example of the contrast between /t/ and /d/.

- (5-66) a. Tyokoreeto no soosu o babarowa no ue
chocolate Gen sauce Obj Bavarian Cream Gen top
ni toroQ to kake -mas-u.
on pour over-Pol -Pres
'Pour the creamy chocolate sauce over the Bavarian Cream.'
- b. Kono koohii naNdaka doroQ to si-te i -ru.
this coffee somewhat do-Ger Cont-Pres
'This coffee looks murky.'

In the above examples, the contrast is not so much a matter of absolute weight or mass as that of relative consistency of the substance vis-a-vis its ordinary condition. In (5-66a), the sauce is as thick as it is expected; in (5-66b), the coffee is murky compared to its expected condition. In absolute terms, the sauce is thicker than the coffee. The same criterion is the basis of the following uses of /toroQ to sita/ 'thick and smooth' and /doroQ to sita/ 'very thick or murky.'

- (5-67) a. toroQ to si-ta hatimitu
do-Past honey

'thick and smooth honey'

- b. doroQ to si-ta mizu
do-Past water

'murky water'

The sentences below show the contrast between /k/ and /g/. The contrast concerns the difference in size/weight of similar objects.

- (5-68) a. Kuru-kuru mawar-u dai arigatoo.
spin-Pres tray thanks

'Thank you for the spinning tray (=lazy Susan).'

- b. KaiteN doa ga guru-guru mawaQ-te naka-naka
revolving door Sbj rotate-and not easily

naka ni hair -e -nakaQ-ta.
inside to enter-Pot-Neg -Past

'The revolving door turned around and around, and I
could not get in easily.'

The contrast occasionally appears in the sense of the movement of a single light object vs. the movement of a mass of the same objects. See the following.

- (5-69) a. Enpitu ga koro-koro korogaQ-ta.
pencil Sbj roll -Past

'The pencil rolled over.'

- b. TakusaN eNpitu o tuka-u toki ni marukaQ-tara
 many pencil Obj use-Pres time Adv round -if
goro-goro korogaQ-tyai -mas-u kara ne.
 roll -end up-Pol-Pres because Emph
 'You see, if the pencils were round, they would roll
around [the desk] as you are working with a large
 number of them [and it would be a nuisance.]'

Another example of the contrast between /k/ and /g/ is the following pair. Note that /kira-kira/ indicates 'sparkling/twinkling of a small body of light, while /gira-gira/ indicates 'glittering/glaring of a large body of light source.'

- (5-70) a. ...demo tokoro-dokoro siroi mono ga kira-kira
 but place-place white thing Sbj
 hikaQ-te i -mas-u.
 shine-Ger Cont-Pol -Pres
 '... but here and there something white is shimmering.'
- b. gira-gira hika-ru manatu no taiyoo
 shine-Pres midsummer Gen sun
 'the glaring midsummer sun'

The semantic contrast of 'refined' vs. 'coarse' is exemplified in the following contrast between /s/ and /z/.

- (5-71) a. sara-sara si-ta sio
 do-Past salt
 'refined salt'
- b. zara-sara si-ta sio
 do-Past salt
 'coarse salt'

The voiced obstruent can also connote the meaning of 'unpleasantness.' The example in (5-66b) can be interpreted to connote such. In addition, see the following.

- (5-72) a. Sito-sito ame ga hur-u.
 rain Sbj fall-Pres
 'Soft rain falls.'

- b. Zito-zito ase ga de -te ku -ru.
sweat Sbj come out-Ger come-Pres

'Sweat comes out uncomfortably. = I'm sweaty.'

The meaning of 'force,' a correlative concept of 'weight/mass,' also plays a role in the contrast of voicing in (5-73) below. Likewise, in (5-74), the movement of an identical object may be described with voiced or voiceless obstruents depending upon the extent of force involved in the movement.

- (5-73) a. pari-pari si-ta harumaki no kawa
do-Past egg roll Gen skin

'crisp skin of egg rolls'

- b. Bari-bari hatarai-te kudasai.
work -Ger please

'Please work with great vigor. = Work hard.'

- (5-74) a. Utiwa de pata-pata aoi-da.
fan with fan-Past

'I fanned lightly.'

- b. Utiwa de bata-bata aoi-da.
fan with fan-Past

'I fanned vigorously.'

The assessment of 'powerfulness,' however, in many cases is subjective. Depending upon the speaker's subjective assessment, an identical movement may be described as 'forceful/heavy' or conversely 'light.' For example the objective event may be the same below.

- (5-75) a. Nama-kuriimu ga putu-putu iQ -te ki -ta.
whipping cream Sbj say-Ger come-Past

'The [heated] whipping cream is bubbling.'

- b. Nama-kuriimu ga butu-butu iQ -te ki -ta.
whipping cream Sbj say-Ger come-Past

'The [heated] whipping cream is bubbling.'

The contrast of 'light' and 'heavy' is extended to psychological conditions, too. Voiceless obstruents often are associated with 'light' feelings/mentalities such as 'carefreeness.' For example, see the following.

- (5-76) a. saraQ to si-ta hito
do-Past person
'a person of a frank disposition'
- b. karaQ to si-ta hitogara
do-Past personality
'a jolly and openhearted person'
- c. keroQ to si-ta taido
do-Past attitude
'an unconcerned appearance as if nothing had happened'
- d. koroQ to ikeN o kae -ru
openion Obj change-Pres
'to change one's opinion entirely without remorse'

Voiced obstruents, on the other hand, are often associated with 'heavy' feelings/mentalities such as 'suspicion,' 'cheerlessness,' and 'complaints.' See the following.

- (5-77) a. bosoQ to si-ta hito
do-Past person
'cheerless person'
- b. butu-butu moNku o i -u
complaint Obj say-Pres
'to grudge'
- c. zироQ to si-ta metuki
do-Past look
'a suspicious look'
- d. guzu-guzu su-ru
do-Pres
'to dilly-dally'

Classical discussions of sound-symbolism always include size sound symbolism, and in such cases, both vowels and consonants are often cited as exhibiting size sound symbolism. (See Newman 1933, Sapir 1929.) In §5.6, we also have seen that Japanese vowels are used for something like size symbolism. What then is the difference between the vocalic 'size symbolism' and the consonantal 'size symbolism' of voicing?

When contrasting the examples so far in this section and those in §5.6, it is clear that vocalic 'size-symbolism' in Japanese is primarily 'form symbolism,' and only secondarily 'size symbolism.' Moreover, it is clear that vocalic 'size symbolism' defines the shape or area involved in the movement or event. In other words, vocalic 'size symbolism' concerns the distribution of events or objects. Consonantal 'size symbolism,' on the other hand, in fact defines the mass -- in the physicist's sense -- of the object involved. This point will be recapitulated by the contrast in the following examples.

- (5-78) a. . . . gaN no mure ga itido ni bata-bata to
 goose Gen flock Sbj once Adv

tobi-tati -masi-ta.
 fly -depart-Pol -Past

' . . . the flock of geese flew out all at once with the noise of flapping wings.'

- b. Tori ga mado no mukoo de pata-pata yaQ-te
 bird Sbj window Gen other side on do-Ger

i -ru.
 Cont-Pres

'A small bird is flapping the wings [against the glass]
 on the other side of the window.'

- c. DaNbooru no atugami ni butu-butu to
 corrugated cardboard Gen thick sheet in

ana o ake -ta.
 hole Obj open-Past

'I punched small holes in a thick sheet of corrugated
cardboard with a sharp pointed object.'

- d. HaQpoo-sutirooru no hako ni putu-putu to ana o
styrofoam Gen box in hole Obj
ake -ta.
open-Past

'I punched small holes in a (light) styrofoam box with a
sharp pointed object.'

The mimetic adverbs in (5-78a) and (5-78b) above describe similar movements by similar animals, namely the flapping of wings; however, the former describes the movement of a large bird, while the latter describes the movement of a small bird. Note that these two mimetic adverbs share the same vowel sequence /-a-a/, while differing in the voicing of the first obstruent.

Likewise, (5-78c) and (5-78d) describe similar movements, namely, piercing certain objects with pointed tips; however, the former involves a heavy/dense object, while the latter involves a light object. Here again, the two mimetic adverbs share the same vowel sequence /-u-u/ but differ as to the voicing of the first obstruent.

Thus, the vowel /a/ signifies a spread-out movement, and the vowel /u/ a protruding movement. The voiced obstruent, on the other hand, signifies a heavy/dense object, and the voiceless obstruent a light/airy object.

5.8.3. Voicing of C₂

In §5.8.1, it was stated that there are two locations where voiced and voiceless obstruents can contrast in bisyllabic mimetic adverbs. We have so far treated the first syllable. In this section, we will treat the voicing of the second consonant.

The role of obstruent voicing in the second syllable is markedly different from that in the first syllable. First, although it was stated that voicing is contrastive in the second syllable, it is not contrastive in the same sense that it is in the first syllable. Nonetheless,

the voicing contrast in the second syllable can signal a semantic difference between two forms in a small number of items. See the following, for instance.

- | | | | |
|--------|----|----------------|---|
| (5-79) | a. | gusu-gusu suru | '(the nose) is runny' |
| | b. | guzu-guzu suru | 'to be slow' |
| (5-80) | a. | moku-moku | 'with a large amount of smoke' |
| | b. | mogu-mogu | '(to talk) indistinctly; (to eat) without moving the mouth very much' |

Note, however, that the semantic contrast is not transparently related to the 'light/heavy' contrast. Nor can we identify a systematic difference in meaning between the above two pairs. The sole exception to this is the following example, in which the voicing contrast is related to the 'light/heavy' contrast.

- | | | | |
|--------|----|---|--|
| (5-81) | a. | Senaka ga <u>moso-moso</u> su-ru. | |
| | | back Sbj do-Pres | |
| | | ' <u>Something (small)</u> is moving in my back.' | |
| | b. | Senaka ga <u>mozo-mozo</u> su-ru. | |
| | | back Sbj do-Pres | |
| | | ' <u>Something (bulky)</u> is moving in my back.' | |

The above, however, is the only case where we can interpret the difference to mean the size difference. Moreover, as far as I know, a voicing difference in the second syllable creates no more than five minimal pairs including the above. One reason is that, as we have seen in §2.2.2.2.2, the voiced obstruents /d, z, g/ are markedly less frequent in the second syllable than the voiceless obstruents /t, s, k/. The following list is almost exhaustive.

- | | | |
|--------|----------------------------|---------------------------|
| (5-82) | zudooN | the sound of a pistol |
| | kud <u>a</u> -kud <u>a</u> | 'complaining endlessly' |
| | kud <u>o</u> -kud <u>o</u> | 'complaining endlessly' |
| | gud <u>a</u> -gud <u>a</u> | 'complaining pointlessly' |

tazi-tazi	'being flustered'
guzu-guzu	'wasting time'
mu <u>z</u> u-mu <u>z</u> u; muN <u>z</u> u	'feeling itchy'
mo <u>z</u> o-mo <u>z</u> o	'feeling itchy'
ma <u>z</u> i-ma <u>z</u> i; maN <u>z</u> iri	'staring'
mo <u>z</u> ya-mo <u>z</u> ya	scraggly beard
i <u>z</u> i-i <u>z</u> i	'without expressing one's desire'
u <u>z</u> u-u <u>z</u> u	'being anxious to do something'
u <u>z</u> ya-u <u>z</u> ya	'swarming'
o <u>z</u> u-o <u>z</u> u	'hesitantly'
uN <u>z</u> ari	'being tired of repetitions'
huga-huga	'mumbling'
sugo-sugo	'defeatedly'
ma <u>g</u> o-ma <u>g</u> o	'being disoriented'
mo <u>g</u> o-mo <u>g</u> o	'mumbling'
mo <u>g</u> u-mo <u>g</u> u	a horse's eating hay
koN <u>g</u> ari	appealingly toasted bread
zuN <u>g</u> uri	short and chabby person
aN <u>g</u> uri	'with the mouth wide open'

Another reason for the paucity of voicing contrasts in the second syllable is the scarcity of /p/ that would contrast with /b/ in that position. Unlike other obstruents, the voiced obstruent /b/ is by far more frequent than the voiceless obstruent /p/ in the second syllable. See the following for an exhaustive list of bisyllabic mimetic adverbs in which C₂ is /b/.

(5-83)	ti <u>b</u> i-ti <u>b</u> i; ti <u>b</u> iri	'stingily'
	to <u>b</u> o-to <u>b</u> o	'moping'

tyo h o-tyo h o	'little by little'
tyo h i-tyo h i; tyo h iQ	'little by little'
to h oN	the sound of something dropped in water
de h u-de h u	'being fat'
da h u-da h u	oversized clothes
do h o-do h o; do h oN	the sound one gets when a large quantity of liquid is poured
sa h a-sa h a	straightforward personality
su h e-su h e	smooth surface
syo h o-syo h o; syoN h ori	'being deserted'
sy h u-sy h u	the noise from thinly sliced meat in soup
za h u-za h u	'washing vigorously'
zu h u-zu h u; zu h uQ	'sinking into (deep snow)'
zu h a-zu h a; zu h ari; zu h aQ	'straight-forwardly'
zu h o-zu h o; zu h oQ	'stepping into (deep mud)'
zy h u-zy h u	'washing vigorously'
ke h a-ke h a	'gaudily'
ga h a-ga h a; ga h aQ	'moving objects in a large quantity'
ga h u-ga h u; ga h uri	'swallowing objects in a large quantity'
ge h o-ge h o; ge h oQ	'vomitting'
ge h u-ge h u; ge h uQ	'burping'
ne h a-ne h a; ne h aQ	'being sticky'
no h i-no h i; noN h iri	'with a relaxed attitude'

Note that the number of the forms with /b/ in (5-83) above is greater than the number of the forms with all other voiced obstruents in (5-82). Also note that (5-83) contains

more variations based on the same root than (5-82); bisyllabic mimetic adverbs with /b/ in the second syllable are more productive than those with other voiced obstruents. In other words, /b/ in the second syllable is quite peculiar compared to other voiced obstruents; /b/ appears where /p/ would be expected. In §5.8.1.5, /b/ will be shown to have the same meaning as /p/. For these reasons, I consider /b/ in the second syllable to derive from underlying //p//. The voicing of the bilabial obstruents in the second syllable therefore is sound-symbolically irrelevant. For historical implications of this, see §6.2.

As for /d, g, z/ in the second syllable, we can add another observation concerning their restrictions. Notice that no p-initial or b-initial forms appeared in (5-82) above. That is to say that most unambiguously and systematically mimetic adverbs do not employ the voiced obstruents /d, g, z/ in the second syllable. The above all leads to the hypothesis that mimetic adverbs with /d, g, z/ in the second syllable are either neologisms or results of sporadic sound changes. In any case, it is clear that voicing in the second-syllable obstruents is not so functional sound-symbolically as voicing in the first syllable. Hence, in the following discussions on the meaning of second-syllable consonants, voiced obstruents except /b/ will be ignored.

5.9. Points and Manners of Consonants

5.9.1. C₂

5.9.1.1. The Alveolar Stop /t/

In §4.10, we learned that the consonants in monosyllabic mimetic adverbs qualify the nature of actions in terms of explosiveness, softness, tenseness and so on. The consonants in bisyllabic mimetic adverbs then are expected to operate along similar lines.

We will initiate the analysis of consonants in bisyllabic adverbs with the second syllable consonants. P-initial forms are the most appropriate starting point in this task, too, because of their unambiguously mimetic status. Other bisyllabic roots will supplement the analysis. The analysis of first-syllable consonants will follow in §5.9.2.

The alveolar stop /t/ is used in contexts where 'hitting' is involved. The meaning is also broadened to include the meanings of 'coming into close contact' and 'complete agreement.' See the following.

- (5-84) a. Sakana ga dai no ue de piti-piti to hane-ta.
fish Sbj board Gen above jump-Past

'The fish vigorously jumped up and down on the board (hitting its surface).'

- b. Daidokoro no nagasi de mizu pitya-pitya ya-ru
kitchen Gen sink in water do-Pres

toka ne.
for example Atten

'Splashing water (by hitting the surface) at the sink of the kitchen, or something like that.'

- c. Nori-tuke -ta baiku ga iti -dai pitaQ to
ride-arrive-Past motorcycle Sbj one-vehicle

syoomeN-geNkaN ni yokozuke sare -ta.
front -entrance at parking on the side be done-Past

'The motorcycle by which he came was driven right up to the entrance and parked parallel to it.'

- d. piQtari arumisassi de tozas-are-ta ie
aluminum door with close-Pass-Past house

'a house which is completely locked up with aluminum doors'

- e. Me ni ibutu ga haiQ-tara kyuQ to me o
 eye in foreign object Sbj enter-if tightly eye Obj
 tubuQ-te namida o das -u ka mizu ni kao
 close-and tear Obj get out-Pres or water in face
 o tuQkoN -de me o pati-pati sase -te
 Obj force in-and eye Obj do(Caus)-and
 tori -mas-u.
 remove-Pol-Pres

'If you get something in the eye, remove it by closing
 your eyes tightly and forcing tears out or by putting
 your face into the water and blinking your eyes several
times.'

- f. Hanasi-kake-yoo to su-ru to doa o pataN to
 talk -start-try Quot do-Pres when door Obj
 sime-te heya o de -te iQ-te sima -u.
 close-and room Obj exit-Ger go-Ger end up-Pres

'When[ever] I start talking to her, she goes out of the
 room slamming the door behind her.'

- g. Namida no tubu ga potaN to oti -masi-ta.
 tear Gen drop Sbj fall-Pol -Past

'A large tear drop fell (and hit a surface).'

- h. Nama-kuriimu ga putu-putu to huQtoo si-te
 fresh-cream Sbj boiling do-Ger

ki -tara hi kara oros -u.
 come-when heat from get off-Pres

'Remove [the pan] from the stove when the heavy cream
 starts boiling and small bubbles come up to the surface.'

Bisyllabic mimetic adverbs with the consonantal combination of /k-t-/ also exhibit
 the meaning of 'hitting.' See the following.

- (5-85) a. Syoogatu no owari goro takebayasi ni
New Year's holidays Gen end about bamboo shrub to
hair -u to asiura ni kotu-kotu to katai mono
enter-Pres when sole to hard thing
ga atar-u koto ga ar -u.
Sbj hit -Pres incidence Sbj exist-Pres
'When you go into a bamboo shrub sometime after the
New Year's holidays, occasionally, something hard hits
the sole of your shoe.'
- b. Usiro ni sagaQ-tari roo-gia ni su-ru to
back to recede-or low-gear to do-Pres when
kata-kata to i -u oto ga si-mas-u.
say-Pres sound Sbj so-Pol-Pres
'When I back up or when I go in first gear, my car
clatters.'
- c. Suruto naka de wa nanika koto-koto oto ga
then inside in Top something sound Sbj
si-te i -masi-ta ga yagate to ga iQsuN
do-Ger Cont-Pol -Past but shortly door Sbj 2 inches
hodo goro'ri to ai -te hikari no obi ga miti
about open-and light Gen sash Sbj road
no siroi uki no ue ni nagaku nobi -masi-ta.
Gen white snow Gen above Adv long extend-Pol-Past
'Then, he heard ratling noises [of the sliding door]
(hitting against the sill) from inside. The door shortly
opened about two inches wide, and the beam of light
shone on the snow and looked like a long piece of sash.'

In the above examples, the mimetic adverbs are related to hitting of a hard surface, partially due to the meaning of 'hard surface' of /k/. In addition, the combination /k-t-/ like /p-t-/ is also related to the meaning of 'close contact' as well as 'tightness/secureness' as below.

- (5-86) a. Kyaserooru ni kiQtiri to huta o su-ru.
casserole to lid Obj do-Pres
'I securely place a lid on the casserole.'
- b. Tozimari wa maibaN kitiQ to tasikame-te
locking doors Top every night check -Ger
i -mas-u.
Cont-Pol-Pres
Every night, without failure, I check if the doors are
locked.'
- c. ZibuN no su-beki sigoto o kaQtiri si-masi-ta ne.
self Gen do-ought job Obj do-Pol-Past Atten
He's securely done the job he should do himself.'

5.9.1.2. The Velar Stop /k/

In contrast to the combination /p-t-/, /p-k-/ indicates 'opening, breaking up, swelling, expanding, puffing out, emission from inside, surfacing from inside or below, floating up' and the like, which all mean some kind of 'inward/outward movement' or 'hollowness.' This meaning is attributed to the velar stop /k/. See the following for examples.

- (5-87) a. Uki ga pikuQ to ugoi-ta.
float Sbj move-Past
'A fishing float bobbed once.'
- b. Hasami wa pika-pika hikaQ-te i -ru yo.
scissor Sbj shine-Ger Cont-Pres Emph
'The scissors are shining, you see.'
- c. Pakuri to bakemono ni nomikomare-te simaQ-ta.
monster by swallow up -Ger end up-Past
'The monster opened up the mouth wide and gulped them
down.'

- d. Saburoo wa soNna SeQ-tyaN no koto o biQkuri
 Saburo Top such Sec-chan Gen state Obj surprise

si-te pokaQ to nagame-te i -ru dake de
 do-and look on-Ger Cont-Pres only Cop

aQ -ta.
 exist-Past

'Saburo, amazed, would just look on such Set-chan with
a stupid look on his face (keeping the mouth wide
open).'

- e. PokiN to hone ga ore -te -te geNzai
 bone Sbj break-Ger-(Cont)-and now

kamakura no byooiN ni nyuuiN-tyuu na N
 Kamakura Gen hospital in hospitalized Cop Comp

des-u keredomo.
 Cop-Pres but (=Atten)

'He broke his leg (as if he snapped a twig), and at
 present he is hospitalized in a hospital in Kamakura.'

- f. Tyoohatu su-ru yoo ni mama-haha no mae de
 challenge do-Pres as if step mother Gen front in

puka-puka tabako o suQ -te mi-tari
 cigarette Obj smoke-Ger try-for instance

si-ta.
 do-Past

'For example, she would blow smoke rings in front of
 her step-mother as if challenging her.'

Mimetic adverbs with the consonantal combination of /t-k-/ also mean 'emission of light' or some kind of 'inward/outward movement' as in the following.

- (5-88) a. Keekoo -too ga tika-tika su-ru.
 fluorescent-lamp Sbj do-Pres

'The fluorescent lamp flickers and pricks my eyes.'

- b. Ase de kao ga teka-teka hikaQ-te -ru.
sweat with face Sbj shine-Ger-(Cont)-Pres

'Her face is glittering with sweat.'

- c. Tuka-tuka haiQ -te -Q -ta.
enter-Ger-go-Past

'They went straight inside (without hesitating or asking for the permission).'

- d. Toge ga yubi ni tikuQ to sasaQ-ta.
thorn Sbj finger to prick-Past

'A thorn pricked my finger.'

- e. Osake ga toku-toku de -te ki -ta.
liquor Sbj exit-Ger come-Past

'The liquor flew out (with amusing noise and hitting against the neck of the bottle).'

The same meaning is identified in /k/ of s-initial mimetic adverbs below in the sense of 'completeness,' 'emptying out,' and 'hollowness.'

- (5-89) a. Sono iQsyuukaN-mae ni wa budoo-dana no
that a week -before Adv Top grape-shelf Gen

budoo ga hutari -gumi ni suOkari
grape Sbj two people-party by

nusum-are-ta no des-u.
steal-Pass-Past Comp Cop-Pres

'A week before, I had all the grapes on the trellis
(emptied out and) stolen by a gang of two.'

- b. Ohuro ni hair -eba kanari no hanazumari mo
bath in enter-if considerable stuffy nose even

sugu suOkiri si-mas-u.
right away do-Pol-Pres

'When you take a bath, a considerably congested nose
clears in no time.'

- c. Abura-yogore ga sukaQ to oti -mas-u
grease-soiledness Sbj come off-Pol-Pres

ne.
Atten

'The greasy dirt comes out completely with ease.'

- d. saQkuri to karoyaka na hazawari no kuQkii
light touch Gen cookie

'cookies that are (hollow and) flaky and light'

The contrast between /k/ and /t/ in the second syllable is reflected in an interesting semantic contrast in the following. The meaning of 'inward/outward movement' of /k/ is extended to the meaning of 'psychological openness' in (5-90a) which describes a pleasant beaming smile. On the other hand, (5-90b) describes 'grinning' or 'smirking' both of which may be considered to be "sticky" kinds of smiling.

- (5-90) a. niko-niko su-ru
do-Pres
'to smile cheerfully'
b. nita-nita su-ru
do-Pres
'to smirk'

5.9.1.3. The Alveolar Fricative /s/

The meaning of /s/ in the second syllable resembles that of /t/ in that both indicate 'contact.' However, the meaning of 'hitting' is absent from /s/. Instead, /s/ indicates that the contact is carried out with friction. See the following.

- (5-91) a. boo no yoo na hari o kaNbasu ni pusu-pusu
stick Gen like needle Obj canvas to
sasi-te yar-u sisyyu no sikata
stick-and do-Pres embroidery Gen method
'a method of embroidery in which one sticks in a
stick-like needle through a canvas'

- b. Hada ga kasa-kasa si -te -ru.
skin Sbj do-Ger-(Cont)-Pres

'The skin feels dry and flaky.'

- c. Gosi-gosi kao o kosuri-masi-ta.
face Obj rub -Pol -Past

'She rubbed her face forcefully.'

- d. To ga gisi-gisi to kisiN -de i -ru.
door Sbj squeek-Ger Cont-Pres

'The door is making a loud squeeking noise.'

5.9.1.4. The Flap /r/

The flap /r/ indicates 'breaking' or 'separation by way of rolling out or down' or just 'rolling.' It can also mean a condition in which such movements are a potentiality. See the following.

- (5-92) a. PeroQ to sita o dasi -te ...
tongue Obj put out-and

'She rolled out her tongue and ...'

- b. Sio o parari to hur -u.
salt Obj shake-Pres

'Sprinkle salt with a shake.'

- c. Nooto o para-para to mekuQ-te kotae o
notebook Obj turn -and answer Obj
sagasi -ta.
look for-Past

'I fingered through a notebook and looked for the answer.'

- d. Namida mo porori to mise-masi-te ne.
tear even show-Pol-and Emph

'She even showed a few tears rolling down [her cheek]

The same characterization holds true with /r/ in t-initial bisyllabic mimetic adverbs; the mimetic adverbs in the following relate to a fluid or rolling movement.

- (5-93) a. NaN da roo Qte tiraQ to mi-tara . . .
 what Cop wonder Quot see-when
 'When I took a quick glance at it, wondering what it
 was, . . .'
- b. Satoo to mizu o maze-awase -te kokoromoti
 sugar and water Obj mix-put together-and slightly
torori to su-ru made ni-tume -ru.
 do-Pres until simmer down-Pres
 'Mix sugar and water and boil it down until it becomes
thick (and smooth).'
- c. Tamago o ire -ru to hazime wa tururi
 egg Obj put in-Pres when beginning Top
to su-ru.
 do-Pres
 'When you put eggs in [the firm dough], the dough is
slippery in the beginning.'
- d. Atuku-te atuku-te ase ga tara-tara
 hot -and hot -and sweat Sbj
 de -te ku -ru.
 come out-Ger come-Pres
 'It's so hot that sweat is rolling down.'
- e. Tokei ga tiri-tiri naQ-ta.
 clock Sbj ring-Past
 'The alarm clock's bell rang (as the spring unwound
 inside).'

In (5-93a) above, /tiraQ to/ means that the eyes roll in a casual sweeping motion. The adverb /toroQ to/ in (5-93b) indicates the smooth fluid movement of a slightly thickened liquid. /Tururi/ in (5-93c) clearly describes a fluid movement. Likewise, /tara-tara/ in (5-93d) refers to the rolling movement of a liquid. The adverb /tiri-tiri/ in (5-93f) is used only for sounds coming from an old-fashioned alarm clock in which the

unwinding rolling motion of a spring produces the sound; the sounds of electronic alarm clocks are not described with this expression.

The meaning of fluid or rolling movement recurs with /k-r-/, too. See the following.

- (5-94) a. Yuuiti ni mo sore ga wakaQ-ta no ka
Yuichi to also it Sbj realize-Past Comp Inter

kururi maware-migi o si-te asibaya ni
turn around Obj do-and fast

take-sar -u no o mi-ru to, ...
run -leave-Pres Comp Obj see-Pres when

'When I saw Yuichi turn around and leave quickly --
perhaps realizing the [inappropriateness] of the
situation, ...'

- b. Omusubi ga hitotu korori to oti-masi-ta.
rice ball Sbj one fall-Pol -Past

'A rice ball rolled down.'

- c. Koko de mo yahari musume no byooki wa
here in also as expected daughter Gen illness Top

kerori to naoQ-te simai-masi-ta.
cure-Ger finish-Pol -Past

'Here again, the daughter's illness took a complete
turnaround and was easily cured.'

- d. Atama ga kura-kura su-ru.
head Sbj do-Pres

'My head is spinning.'

- e. Itumo hogaraka ni kuru-kuru to hatarai-te i -ta.
always cheerfully work -Ger Cont-Past

'She was always working cheerfully, moving from one
place to another like a spinning top. = She was always
working cheerfully like a beaver.'

- f. Namida ga kirari to hikaQ-ta.
 tear Sbj shine-Past

'The tear glimmered.'

In most of the above, the meaning of 'rolling movement' is easily identified; the role of /r/ in the last one, (5-94f), however, may not be too clear and needs some explanation. The mimetic adverb /kirari/ is used to describe small bodies of light such as distant stars, precious gems, and dew drops, on which the ray of light appears to roll over a shiny surface. Thus, this adverb also concerns 'rolling movement.'

The meaning of 'fluid movement' is identified in s-initial mimetic adverbs with /r/, too. In the following, the mimetic adverbs mean 'ease of movement,' 'smoothness,' and 'slenderness.' All of these are semantic variations of 'fluid movement.'

- (5-95) a. Saru wa suru-suru to masuto e yozi-noboQ-te
 monkey Top mast to climb up -Ger
 simai -masi-ta.
 complete-Pol -Past

'The monkey quickly climbed up the mast with perfect ease.'

- b. Yuki ga sara-sara to amado ni ataQ-te
 snow Sbj storm shutter to hit -and
 wa oti-te iki-mas-u.
 Top fall-Ger go -Pol -Pres

'The fine snow flakes gently fall against the storm
 shutter and fall off [to the ground] (without sticking).'

- c. Kono syasiN de mo surari to si-ta Atuko-saN no
 this picture in also do-Past Atsuko Gen
 tonari de ookina onaka ga medati -mas-u.
 next in big stomach Sbj stand out-Pol -Pres

'In this picture, also, you will see how my big stomach
 stands out compared to slender Atsuko next to me.'

5.9.1.5. The Labial Stops /p/ and /b/

The labial stops /p/ and /b/ in the second syllable of bisyllabic mimetic adverbs both relate to 'breaking' or 'explosive event.' First, see some examples of /p/.

- (5-96) a. SeQ-tyaN wa mata supoQ to mizu no naka ni
Setsuko Top again water Gen inside in
kie -ta.
disappear-Past
'Setsuko again plunged and disappeared entirely into the
water all of a sudden.'
- b. SuQpori moohu ni kurumaQ -te ne -te i -ta.
blanket in be covered-and sleep-Ger Cont-Past
'She was asleep entirely wrapped up in a blanket.'
- c. . . oziisaN no kobu o supoN to mogi-toQ-te
old man Gen lump Obj tear off -Ger
simai-masi-ta.
finish-Pol -Past
' . . . [the demon] tore off the old man's lump with a pop.'

In the above, the mimetic adverb /supoQ/ in (5-96a) describes the action of plunging into water; in other words, it concerns the 'breaking of a water surface.' In (5-96b), /suQpori/ apparently means 'wrapping up with a flat covering as if plunging into it.' In (5-96c), /supoN/ describes an explosive event of breaking off something. Compare this with /sutoN/ in the following, and it is clear that the meaning of 'breaking' is attributed to /p/ in the second syllable; /sutoN/ means 'falling to a surface' but not 'breaking.'

- (5-97) Aya-tyaN tara beQdo kara sutoN te oti-ta no.
Aya Top bed from fall-Past Atten
'Aya fell off from the bed without even trying to cling
on to it. = Aya fell off from the bed just like that.'

All the mimetic adverbs in (5-96) above are based upon a single mimetic root /supo-/, but there are other mimetic roots that also exhibit the characteristic meaning of /p/, 'breaking.' See the following.

- (5-98) Oni no kata -ude o supaQ to migoto ni
 demon Gen one side-arm Obj remarkably
 kiri-otosi-ta.
 cut-drop -Past
 'He chopped off the demon's arm in a remarkable single slice.'

The meaning of 'breaking' is extended to 'decisiveness/refreshingness' in the following examples.

- (5-99) a. SuQpari akirame-tara.
 give up -Subjunctive
 'Why don't you give it up once and for all?'
 b. Sawayaka na saQpari si-ta azi na N
 refreshing do-Past taste Cop Comp
 des -u yo ne.
 CopPol-Pres Emph Atten
 'It's got a refreshing taste, hasn't it?'

The voiced counterpart of /p/, /b/, also exhibits the meaning of 'breaking,' and 'decisiveness.' See the following.

- (5-100) a. Surudoï dezaiN no tame ni kotira no yubi
 sharp design Gen due to this side Gen finger
 ga zubaQ to kir-are -ru koto ga ar -u.
 Sbj cut-Pass-Pres incident Sbj exist-Pres
 'Because of its sharp design, I sometimes get my
 finger cut (sharply) with it.'
 b. Zubari okotae kudasai.
 answer I request.
 'Please give me an unreserved opinion of yours.'

- c. Yuki no naka ni zubu-zubu haiQ-te sima -u.
snow Gen inside in enter-Ger end up-Pres

'My feet get caught into the deep snow.'

The meaning of 'submergence' recurs with /p, b/. In the above, (5-96a) and (5-100c) are also considered to belong to this subcategory. Apparently, this meaning is related to the meaning of 'breaking the water surface.' There are other examples of, as below (5-101).

- (5-101) a. ToOpuri to yu ni tukar -u.
hot water in immerse-Pres

'I deeply immerse myself in the hot water.'

- b. ObaasaN ga kawa de zyabu-zyabu seNtaku o
old woman Sbj river in laundry Obj

si-te i -ru to kawakami kara
do-Ger Cont-Pres when upper part of river from

nanika nagare-te ki -masi-ta.
something flow -Ger come-Pol -Past

'When the old woman was washing her laundry (making a lot of noise), something flowed down the stream to her.'

- c. Uiskii o dobo-dobo to keeki no ue ni kake-ta.
whisky Obj cake Gen top on pour-Past

'She poured plenty of whisky over the cake.'

5.9.1.6. The Bilabial Glide /w/

The meaning of /w/ in the second syllable is rather hard to define because it appears in only a small number of adverbs. In most cases, however, /w/ appears to be related to the meaning of 'softness,' 'faintness,' and 'haziness.' See the following.

- (5-102) a. Puwa-puwa to ui -ta.
float-Past

'It floated unreliably.'

- b. huwaQ to si-ta yuki
do-Past snow

'soft snow'

- c. Sowa-sowa to otituk -anai.
settle down-Neg

'She is nervous and does not stay at one place.'

- d. Sawa-sawa to kaze ga kusa no aida
wind Sbj grass Gen space between

o huki-nuke-ru.
Obj blow-pass-Pres

'The wind blows softly through the grass. = The grass
ripples with wind.'

- e. Zawa-zawa si-te i -ru.
do-Ger Cont-Pres

'It's noisy with the general stir [of the people].'

In contemporary Tokyo Japanese, excepting recent loan words and some monosyllabic mimetic adverbs (see §2.2.2.2.1), /w/ is always followed by the vowel /a/ except in the object marker /o/ which some people pronounce as /wo/. It is widely accepted that /w/ could appear at least before /i, e, a, o/ in Old and Middle Japanese and that it was gradually dropped before /i, e, o/ in the change to modern Japanese (Mabuchi 1971). The conjugations of w-ending verbs as opposed to those of other C-ending verbs in the following clearly show this.

- | | | | |
|---------|----|----------|-----------------|
| (5-103) | a. | nom-anai | 'do not drink' |
| | | nom-itai | 'want to drink' |
| | | nom-eba | 'if I drink' |
| | | nom-oo | 'let's drink' |

b.	taɿ-anai	'do not stand up'
	taɿ-itai	'want to stand up'
	taɿ-eba	'if I stand up'
	taɿ-oo	'let's stand up'
	but	
c.	kaw-anai	'do not buy'
	ka-itai	'want to buy'
	ka-eba	'if I buy'
	ka-oo	'let's buy'

In contemporary bisyllabic mimetic adverbs also, /w/ in the second syllable is always followed by the vowel /a/. One mimetic adverb, /sio-sio/, however, retains the reflex of /w/ before /o/ in its semantics and means 'meekly' or 'wilting.' An independent reason to suspect that there was /w/ before /o/ is the irregularity of the combination /io/ in the system of mimetic adverbs as a whole. As it turns out, /sio-sio/ is related to the old form of /sioreru/ 'to wilt,' /siworeru/ in etymological dictionaries (Kindaichi et al. 1976).

5.9.1.7. The Alveopalatal Glide /y/

Like /w/, the alveopalatal glide /y/ also means 'haziness.' This meaning of /y/, however, is a derivative of the central meaning of /y/, 'concurrence of many things' or 'sound from many sources.' In addition, /y/ means 'childishness.' See the following.

- (5-104) a. Kyaku ga waN no huta o toQ-ta toki
 guest Sbj soup cup Gen lid Obj take-Past when
 mada umoo mo hae -sorrow -anai hiyoko ga
 still feather even grow-be ready-Neg chick Sbj
piyo-piyo to nai-te de -te ki -ta to
 cry-and exit-Ger come-Past Quot
 i -u.
 say-Pres

'They say that, when the guests took off the lids of the soup cups, featherless chicks came out of the cups as they peeped.'

- b. Boya-boya si-nai-de.
do-Neg-Ger

'Don't be absent-minded.'

- c. BoyaQ to kasuN -de i -ru.
be misty-Ger Cont-Pres

'[The area] is veiled in a mist.'

- d. Doya-doya haiQ -te ku -ru.
come in-Ger come-Pres

'A group of people come in noisily.'

- e. doNyorito kumoQ -ta sora
be cloudy-Past sky

'a murkily cloudy sky = a leaden sky'

- f. Soyo-soyo to kaze ga huk -u.
wind Sbj blow-Pres

'The wind gently blows. = The breeze goes.'

- g. Sugu kuyo-kuyo si-te simai -mas-u.
soon do-Ger end up-Pol-Pres

'I always end up worrying about little mistakes.'

- h. Kesa mo kiri ga atari o
this morning also fog Sbj surrounding Obj

moya-moya to tutuN -de i -masi-ta.
envelop-Ger Cont-Pol -Past

'This morning again, a fog surrounded all around [the house] and made everything look obscure.'

- i. kabe no naka kara ari ga uyo-uyo de -te
wall Gen inside from ant Sbj exit-Ger
zoQ to si-masi-ta.
shudder -Pol -Past

'The sight of hundreds of ants swarming out of the wall
sent a chill down my spine.'

The meaning of 'childishness' or 'haziness' of /y/ in the second syllable is creatively used by Hayashiya, a professional entertainer in the art of rakugo in the following example.

- (5-105) Oyazi no hoo wa isee ga ii. Senaka no
father Gen side Top spirits Sbj good back Gen
- taiko o goro-goro-goro-goro goro-goro-goro-goroQ' to
drum Obj
- tataki-nagara pika-pika-pika-pikaQ. Kodomo no hoo
hit -as child Gen side
- wa soo wa ik-anai. Peka-peka-peka-peka peka-peka-
Top so Top go-Neg
- peka-peka goyo-goyo-goyo-goyo-goyo-goyoQ' te
- tui -te ku -ru.
follow-Ger come-Pres
- 'Father Thunder is spirited. Hitting the drum on the
back like goro-goro-goro-goro goro-goro- goro-goro, he
sends tremendous lightning. Child Thunder can't do so
well. He follows his father with second-rate lightning and
the sound of goyo-goyo-goyo-goyo-goyo-goyoQ''

In the above, the spirited drum hitting of the father is expressed with /r/, while the immature hitting by the child is described with /y/. The latter expression is not a standard form; it is an original expression by Hayashiya. This shows that the value of /y/ is intuitively known to native speakers and used in expressive contexts.

It will be noticed that the meaning of /y/ as the second consonant is the same as that of palatalization as described in §6.1.2. The common constraints on the following vowels apply here, too: while /u/ is allowed after /y/ or palatalized consonants in the ordinary stratum of Japanese, only /a/ and /o/ appear in that position in bisyllabic mimetic adverbs.

5.9.1.8. The Nasals /m, n/

Not too many examples of second syllable nasals exist. Also, no p-initial forms have nasals in the second syllable. Nevertheless, at least /n/ can be demonstrated to be consistently associated with the meaning of 'elasticity,' 'bending,' 'unreliability,' 'lack of force,' 'weakness,' and the like. See the following.

- (5-106) a. Tamotu wa moo hena-hena to sina-u eda
 Tamotsu Top already bend-Pres branch

no saki e ki -te i -masi-ta.
 Gen tip to come-Ger Cont-Pol -Past

'Tamotsu had already come to the end of the branch
 which was bending precariously.'

- b. RaameN no doNburi nado no huti ni wa
 Chinese noodles Gen bowl etc. Gen edge on Top
gonyo-gonyo si-ta seN ga kai -te ari -mas-u.
 do-Past line Sbj draw-Ger exist-Pol-Pres

'On the edge of the Chinese bowls used for noodles, etc.,
a jumbled pattern of curved wavy lines is drawn.'

- c. Tetu no boo ga gunyaQ to magaQ-ta.
 iron Gen bar Sbj bend -Past

'The iron bar bent like taffy.'

- d. Ringo o usuku kir-i satoo o mabusi-te
 apple Obj thinly cut-and sugar Obj sprinkle-Ger

ok -u to siNnari si-te ki -mas-u.
 keep-Pres when do-Ger come-Pol -Pres

'When you slice apples thinly and sprinkle them with
 sugar and wait, they will become soft.'

- e. une-une to magari-nagara tuzuk -u misaki
 bend -as continue-Pres promontory

no yama -miti
 Gen mountain-road

'hilly road at the promontory which goes on winding'

The following examples also are considered to belong to this class of mimetic adverbs because /n/ in these means 'unreliability/weakness/un- intelligibility' which is on a semantic continuum of 'elasticity.'

- (5-107) a. munya-munya i-u
say-Pres
'to say something unintelligible'
- b. wana-wana hurue-ru
shake-Pres
'to shake feebly'

Some of the above forms minimally contrast with other mimetic adverbs. These clearly support the view that the meaning of /n/ in the second syllable is 'bending' or 'elasticity.' In the following, /heta-heta/ means 'falling flatly onto a surface' while /hena-hena/ indicates the movement of 'bending feebly.'

- (5-108) a. GeNkaN-saki ni heta-heta to kuzure-oti-ta.
entrance-tip at break -fall-Past
'She fell down and squated feebly in front of the entrance.'
- b. GeNkaN-saki ni hena-hena to kuzure-oti-ta.
entrance-tip at break -fall-Past
'She fell feebly bending in front of the entrance.'

The contrast shows up even more clearly in the fact that only /hena-hena/ is acceptable below.

- (5-109) a. hena-hena to magar-u
bend -Pres
'to bend feebly'
- b. *heta-heta to magar-u

In addition, compare (5-106b) above with (5-110) below. Both (5-106b) and (5-110) mean that the lines are entangled, but, while /gonyo-gonyo/ in (5-106b) indicates 'curvy lines', /gotya-gotya/ in (5-110) does not indicate 'curviness'.

(5-110) gotya-gotya si-ta seN
do-Past line

'messy lines'

The similarity between the meaning of /n/ in the second syllable and that of final /N/ is worthy of note. The meaning of final /N/ includes 'elasticity'; /n/ means 'bendability.' The difference is that final /N/ means 'forcefulness' and hence 'bouncing back,' while medial /n/ means 'forcelessness' and hence 'bending and giving up.'

The labial nasal /m/ appears even more limitedly than /n/. The following list exhausts all adverbs with /n/ in the second syllable which are considered to be mimetic by Asano (1978).

(5-111)	tima-tima	'in a meager scale'
	tiNmari	'in a small shape'
	gami-gami	'scolding loudly'
	zime-zime	'being uncomfortably wet'
	zimeQ to	'being uncomfortably wet'
	nume-nume	'shiny and slippery'
	niNmari	'smirking'
	nami'-nami ~ nami-na'mi	'flowing out'

Of the above, the accent of the last item is aberrant as a mimetic adverb; rather, it is considered to be a reduplicated form of the noun /nami/ 'wave.' Even when we exclude /nami-nami/, however, the meaning of /m/ is hard to abstract from the above list.

5.9.2. C₁

5.9.2.1. The Bilabial Stops /p, b/

The semantic characterization of initial consonants in monosyllabic mimetic adverbs in §4.9.1 largely applies to the initial consonants of bisyllabic mimetic adverbs.

Regardless of the second consonant, all p-initial and b-initial bisyllabic mimetic adverbs concern surface tension of such object as water, thread, film, skin and so on; in other words, they concern breakable tense surfaces. See the following.

- (5-112) a. Sono kutimoto wa waraQ-te i -ru ga
that mouth Sbj smile-Ger Cont-Pres but

poroN to namida o kobosi-ta no o
tear Obj shed-Past Comp Obj

kodomo-tati ga mi -nogas-u wake wa nai.
child -Pl Sbj see-lose -Pres reason Top Neg

'Her mouth [was] smiling, but the children [couldn't]

help noticing that she shed a drop of tear.'

- b. Pari ni tui -te watasi no biQkuri-gyooten
Paris at arrive-and I Sbj surprise

si-ta koto wa matikado de mo hoteru no
do-Past event Top street corner at also hotel Gen

naka de mo basu no naka de mo doko de mo
inside at also bus Gen inside at also where at also

otoko to oNna ga kao o piQtari
man and woman Sbj face Obj

osi -tuke -aQ -te seQpuN si-te i -ru huukee
push-attach-meet-and kiss do-Ger Cont-Pres scene

de aQ -ta.
Cop exist-Past

'What surprised me most when I arrived at Paris was

seeing the [Parisian] men and women kissing with their

faces pressed tightly together. = What surprised me

most when I arrived at Paris was seeing the Parisian

men and women displaying their affection so openly by
kissing locked in tight embraces.'

- c. Sakana a mainiti kaQ-te atega-u Qtee to
fish Top every day buy-and give -Pres when
- hari de moQte puturiQ puturiQ to mono no migoto
needle with remarkably
- ni i -tubusi -te sima -u.
Adv shoot-destroy-Ger end up-Pres

'When he buys a fish and gives it [to the blind man], [the
blind man] throws his [acupuncture] needle with
remarkable skill, hitting (and piercing) [the eye of the
fish] every time.'

- d. Zyuu-neN gurai mae wa poQtyari hutoQ -te i -ta.
ten-year about before Top be plump-Ger Cont-Past
- 'About ten years ago, I was plump.'

In the above, (5-112a) indicates that the liquid forms a round shape due to the surface tension. The mimetic adverb in (5-112b) describes the touching of cheeks, and cheeks are stretched surfaces. The mimetic adverbs in (5-112c) refers to the eye, which also has a tensely stretched surface. The mimetic adverb in (5-112d) describes youthful plumpness.

5.9.2.2. The Alveolar Stops /t, d/

In contrast to p-initial and b-initial bisyllabic mimetic adverbs, t-initial and d-initial bisyllabic mimetic adverbs do not have the meaning of 'tenseness of the surface.' When a t-initial or d-initial mimetic adverb describes a liquid such as water, it lacks the meaning of 'surface tension' characteristic of p-initial mimetic adverbs which are related to liquids, and the sentence describes a flowing or large body of liquid, never drops of liquid. See the following.

- (5-113) a. Tara-tara hatimitu kobos-anai-de tyoodai.
honey drip -Neg -Ger please
'Please don't drip the honey sloppily.'
- b. Karameru ga kata no soko de torori to su-ru
caramel Sbj mold Gen bottom at do-Pres
kaNzi ni nar -u.
feeling to become-Pres
'The caramel sauce becomes thick at the bottom of the mold [when cooled].'
- c. WaiN o ake -ta toki no saisyo no toku-toku
wine Obj open-Past time Gen first Gen
i-u oto ga suki.
say-Pres sound Sbj like
'I like the sound of wine you hear when you open the bottle [and pour the wine] for the first time.'
- d. doro-doro si-ta mizu
do-Past water
'muddy water'

The consonants /t/ and /d/ also appear in mimetic adverbs that relate to non-stretchable soft surfaces. In (5-114a) below, /tururi/ means that the hand rolled over a soft skin. In (5-114b), /toko-toko/ refers to a young child's way of walking. This mimetic adverb is also used to describe the sounds of hoofs of young horses or small, light-weight horses. In either case, the sole is soft.

- (5-114) a. ONna wa tururi to te de kao o nade-masi-ta.
woman Sbj hand with face Obj pat -Pol-Past
'The woman lightly brushed her face with her hand (as she rolled her hand over it).'
- b. Mata misyeeru ga toko-toko kake-te ki -ta.
again Michelle Sbj run -Ger come-Past
'Here comes Michelle again, trotting her way over.'

Another meaning of /t, d/ which is related to 'lack of surface tension' is 'subduedness of the movement/sensation.' This is particularly clear when we contrast t-initial and d-initial forms with p-initial and b-initial forms. See the following examples of t-initial and p-initial mimetic adverbs.

- (5-115) a. Tokoroga deki-agaQ -ta animeesyon wa
 however be completed-Past animation film Top
tika-tika to si-te taihen minikui mono
 do-and very difficult to see object
 daQ-ta.
 Cop-Past

'However, against my expectation, the finished
 animation film flickered as if lights were switched on
 and off continuously [due to different exposures of
 pictures which I had been unaware of].'

- b. Iwasi -uri wa ... pika-pika hikar-u iwasi
 sardine-vendor Top shine-Pres sardine
 o ryoo-te de tukaN-de Yasuke no ie no
 Obj both-hand with grub-and Yasuke Gen house Gen
 naka e moQ-te hairi-masi-ta.
 inside to hold-and enter-Pol -Past

'The sardine vendor held the shiny sardines in both
 hands and went into Yasuke's house.'

The mimetic adverb /tika-tika/ in (5-115a) above describes a subdued light;
 /pika-pika/ in (5-115b), on the other hand, indicates 'shining,' conspicuous reflection or
 emission of light.

The contrast between 'tenseness' and 'subduedness' explains many other uses of /p/
 and /t/. The following examples of p-initial and t-initial bisyllabic mimetic roots confirm
 that /p/ is associated with 'agressiveness/vigorousness/tenseness,' while /t/ is associated
 with 'sleepiness/laziness/subduedness.'

(5-116) a.	piri-	sharp sensation such as an electric shock
	pari-	dry rice crackers; crisp lettuce
	puri-	anger
	paka-	vigorous sound of hoofs
	paki-	responsiveness; energetic and effective movement
	paku-	eating vigorously
	puku-	anger; puffing
	piku-	observable pulses
	pika-	lightning, bright stars
b.	tiri-	subdued sound of an alarm clock
	tara-	laziness; slow dripping
	toro-	sleepiness
	tira-	flickering movement
	tobo-	trudging
	teku-	trudging
	tika-	shimmering of tail lamps, distant stars, etc.

5.9.2.3. The Velar Stops /k, g/

Initial /k/ and /g/ indicate 'hard surface' of such objects as metal, concrete, and hard wood. The surface that is referred to by /k, g/ is more solid than that referred to by /p, b/ or /t, d/, and it is not easily stretchable or breakable or penetrable. See the following.

- (5-117) a. KoQpu de nom -u toki ha ni ataQ-te
 cup with drink-Pres when teeth to hit -and
kari-kari to oto ga su-ru.
 sound Sbj do-Pres

'When [the baby] drinks from a cup, the cup hits against the [baby's] teeth and makes tinkling noise.'

- b. Koto-koto to manaita o tatak-u hootyoo
cutting board Obj hit -Pres knife

no oto ni me ga same-ru ...
Gen sound to eye Sbj wake-Pres

'I wake up at the rhythmic sounds of [my mother]
chopping something (with a knife) on the cutting
board ...'

- c. Sono zaimoku o ookina tobiguti de
that log Obj large (a kind of tool) with

katuN katuN to tataki-mas-u.
hit -Pol-Pres

'They hit the logs with a large pole with a hook in the
end, making knocking noises on the hard surface.'

The object that /k/ refers to may not necessarily be as hard as metal or rock, but at least, it must be solid and not easily breakable into pieces. In the following examples, metaphors are probably at work.

- (5-118) a. Koko kara kono soogeN o koro-koro korogaQ-te
here from this field Obj tumble-and

kaeroo Qto.
go home Quot

'I'm going to tumble down this grassy hill all the way
home.'

- b. Me ga kuri-kuri to yoku ugok -u.
eye Sbj often move-Pres

'Her eyes are rolling from one side to another all the
time.'

Another metaphoric use of /k/ is below (5-119). Although the object is not so hard or even solid, /k/ is used because it has a metallic and hard appearance.

- (5-119) SiNzyuku no keeoo-puraza saNkaku-biru no
 Shinjuku Gen Keio-plaza triangle-building Gen
 atari wa midori ga kira-kira kagayak-i kaze ga
 vicinity Top green Sbj shine-and wind Sbj
 hakinuk -e kimoti no yoi basyo ni
 breeze through-and feeling Gen good place to
 naQ -te i -mas-u.
 become-Ger Cont-Pol-Pres

'The vicinity of Keio Plaza and the 'Triangle Building' in
 Shinjuku has become a refreshing area with the trees
shimmering [like jewels] [in the sun] and breeze passing
 through.'

The contrast between initial /k/ and /p/ in terms of 'stretchability' is clear in the following. The mimetic adverbs /kasa-kasa/ and /pasa-pasa/ are used in similar contexts, and both indicate 'dryness.' However, in this example, /k/ relates to 'dry skin', while /p/ relates to 'dry hair.' Note that 'dry, flaky skin' is less stretchable than 'dry hair.'

- (5-120) a. Hihu ga kasa-kasa si-te i-ru.
 skin Sbj do-Ger Cont-Pres
 'The skin is dry and flaky.'
 b. Kami no ke ga pasa-pasa si-te i -ru.
 hair Gen hair Sbj do-Ger Cont-Pres
 'My hair is dry.'

The following sentences also exhibit the same contrast of 'non-stretchable' vs. 'stretchable.' They both indicate 'tightness of contact,' but (5-121a) with /k/ refers to a glass dish and lid, while (5-121b) with /p/ refers to human body parts.

- (5-121) a. Kyaserooru ni kiQtiri huta o si-ta.
 casserole on lid Obj do-Past
 'I securely placed a lid on the [glass] casserole dish.'
 b. momo ni piQtiri si-ta ziipaN
 thigh to do-Past jeans
 'jeans that are tight around the thighs'

The same is true of g-initial and b-initial mimetic adverbs. For example, the more solid the structure is, the more likely it is that /gura-gura/ describes its shaking rather than /bura-bura/. See the following.

- (5-122) a. Ie ga gura-gura yure -ta.
house Sbj shake-Past
'The house shook violently.'
- b. BuraNko ga bura-bura yure -ta.
swing Sbj shake-Past
'The swing swayed leisurely.'

The primary meaning of /k-t-/, 'contact on solid surface,' gives rise to the meaning of 'firm contact.' The example in (5-121a) above contains this meaning, too. Also see the following in which the mimetic adverb /koQteri/ means that thick sauce covers the entire surface of the solid contents.

- (5-123) Syooyu azi de nikoN-de ar -u kara
soy sauce taste with stew -Ger exit-Pres because
koQteri si-te naN to mo i-e-nai ii aziwai
do-and undescrivable good taste
des-u.
Cop-Pres
'[This dish] is stewed with soy sauce for a long time.
So it's very rich (with thick sauce clinging to the fish
and vegetables) and tastes indescribably good.'

The semantic continuum of 'contact of solid surfaces' and 'firm contact' covers the meanings of 'rigidity of attitude' and 'securedness of action,' too. See the following.

- (5-124) a. Anata wa oeru mitai ni kitiQ to
you Top female office worker like Adv
si-ta meeree keetoo no ar -u tokoro de wa
do-Past order line Sbj exist-Pres place at Top
zeQtai ni iki-te ik-e -nai hito.
absolutely Adv live-Ger go-Pot-Neg person

'You are the kind of person who cannot get along in occupations such as office clerks where there is a rigid line of order.'

- b. HoNto kaQtiri si-te i -ru Qte i -u ka
really do-Ger Cont-Pres Quot say-Pres Inter
nee.
Atten

'I'd say she really holds firmly onto [money]. = 'I'd say she surely doesn't let any money slip by.'

- c. Itibu mo tigaw-anai yoo ni kitiN to
a little even differ-Neg in such a way
si-ta waku ni hamekoN-de iQpo mo
do-Past frame in fit -and one step even
ugokas-e -nai.
move -Pot-Neg

'She places everything in a firm schedule to the minute and cannot move anything even a fraction.'

- d. KaQtiri banto o su-ru yoo ni
bunt Obj do-Pres state to
nari -masi-ta ne.
become-Pol -Past Atten

'He has come to bunt securely.'

Lastly, /k/ appears to indicate 'velar sounds' in the mimetic adverbs /kera-kera/ and /kusu-kusu/ which describe manners of laughing. See the following.

- (5-125) a. SoNna ni kera-kera waraw-anai-de.
so Adv laugh -Neg -Ger

'Don't giggle like that.'

- b. Usiro de kusu-kusu waraw-are -ru no wa
back in laugh -Pass-Pres Comp Top
tamaranai.
unbearable

'I cannot stand it when they titter in my back.'

5.9.2.4. The "Bilabial" Fricative /h/

So far, we have looked at initial stops. We will look at the fricatives /h, s, z/ in initial position next. We will first discuss the semantic role of the "bilabial" fricative /h/ in this section. Section 5.8.2.5 will deal with /s, z/.

The fricative /h/ in Japanese in general participates in a peculiar relationship with the bilabial stops /p/ and /b/. Some, though not all, /h, p, b/ alternate morphophonemically.

See the following.

(5-126)	a.	iQ- <u>p</u> ai	'one cup'
		one-cup	
		ni- <u>h</u> ai	'two cups'
		two-cup	
		saN- <u>h</u> ai	'three cups'
		three-cup	
		yoN- <u>h</u> ai	'four cups'
		four-cup	
	b.	<u>h</u> eN	'(geometric) side'
		iQ- <u>p</u> eN	'one side'
		one-side	
		ni- <u>h</u> eN	'two sides'
		two-side	
		saN- <u>p</u> eN	'three sides'
		three-side	
	c.	<u>h</u> a	'tooth'
		deQ- <u>p</u> a	'projecting tooth'
		project-tooth	
		mae- <u>h</u> a	'front teeth'
		front-teeth	
	d.	hito- <u>h</u> ito	'people'
		person-person	

The complexity of the above alternations are due to the following historical circumstances (Sato et al. 1977). Old Japanese /p/ was replaced by /h/ in general. Geminate clusters, however, preserved /p/. In the meantime, obstruents often came to be voiced after nasals. And in some compounds, rendaku 'sequential voicing' caused voicing of obstruents after morpheme boundaries. Also, regularization of morphophonemic irregularities and new formations based upon different models by individual speakers added yet another complexity to the class of "counters."

In mimetic adverbs, however, the triangle between /p, b, h/ in morpheme-initial position is simpler due to the following reasons. First of all, initial /p/ was preserved, thus preserving the contrast of /p/ and /b/ initially. Second, in mimetic adverbs, morpheme boundaries do not cause morphophonemic alternations; rendaku is irrelevant. Nor does the preceding mora nasal cause voicing of the obstruent. Thus, in morpheme-initial position of mimetic adverbs, /p/, /b/, and /h/ are clearly in contrast.

We have already seen that the contrast between /p/ and /b/ is that of 'light vs. heavy.' Therefore, the task here is to define the meaning of /h/ vis-a-vis /p, b/. One meaning of /h/ not shared by /p, b/ is 'weakness/softness,' or 'less focused, less sharp sensation and movement.' See the following.

- (5-127) a. Watasi wa sono tuyoi hikari ni tur -are -te
 I Top that strong light by pull-Pass-and
hura-hura to teNnai ni haiQ -te mi -ta.
 inside of a store to enter-Ger see-Past
 'I was tempted by the bright lights to step into the
 store without any purpose.'
- b. Kyuu ni hura-hura si-ta.
 suddenly do-Past
 'I felt dizzy all of a sudden.'

The mimetic adverb /hu'ra-hura/ in (5-127a) above means that the actor is tempted to do something without any clear motivation. When used as /hura-hura suru/ as in (5-127b),

it means that one weakly sways in fatigue or feels dizzy. In other words, the adverb means some sort of 'weakness, unreliability, and focuslessness.' The mimetic adverb /pura-pura/, which means some sort of swaying, is not used in a similar context, but /bura-bura/ is. The meaning of /bura-bura/ in a similar context is 'walking leisurely.' It resembles /hura-hura/ in the sense both refer to 'an absence of a single focus,' but /bura-bura/ does not imply 'weakness.'

The meaning of 'unreliability and indeterminateness' explains the following case, too.

- (5-128) Omae itumo waraQ-te N da. Magao
 you always laugh -Ger Comp Cop serious expression
 ni naQ -ta Qte doQka hera-hera
 to become-Past even when somewhere
 si-ta tokoro ga ar -u.
 do-Past aspect Sbj exist-Pres
 'You are always laughing. Even when you have a serious
 expression on your face, there is something elusive
 about it. = You are always laughing. Even when you
 have a serious expression on your face, somehow I feel
 you're laughing inside.'

In other cases, /h/ clearly contrasts with /p/ in the sense of 'elegance' vs. 'gaudiness/cheapness.' The falling of flower petals and the movements of butterflies, for example, are habitually described with /h/ rather than /p/, as in the following.

- (5-129) a. RaNmaN to sai -ta sumomo no hana ga
 in full bloom bloom-Past plum Gen flower Sbj
 sono hane ni hure -te yuki no yoo ni
 that wing to touch-and snow Gen like Adv
 kiyoraka ni hara-hara to tiri-masi-ta.
 cleanly Adv fall-Pol -Past

'Touching the [goose's] wing, the plum blossoms in full bloom were (elegantly) strewn to the ground like pure snow flakes.'

- b. Tyoo wa hira-hira takaku mai-agar-u
butterfly Top up high dance-rise-Pres

to . . .
then

'The butterfly flew up high elegantly as if dancing . . .'

5.9.2.5. The Alveolar Fricatives /s, z/

The alveolar stops /t, d/ were demonstrated to indicate 'non-explosive light hitting,' 'subdued action,' and 'flowing body of liquid which lacks surface tension.' The alveolar fricative /s, z/ in contrast to /t, d/ mean 'light touch, friction' or 'the movement of granules.' See the following.

- (5-130) a. Yuki ga sara-sara to amado ni ataQ-te
snow Sbj storm shutter to hit -and

wa oti-te iki-mas-u.
Top fall-Ger go -Pol -Pres

'The fine snow flakes lightly touch the storm shutter and fall [to the ground].'

- b. Guranyuu-too o ue kara sara-sara to hur -u.
granuated sugar Obj above from shake-Pres

'Sprinkle granuated sugar from above.'

- c. zara-zara si-ta kaNsyoku
do-Past feeling

'coarse feeling to the touch'

Like /t, d/, /s, z/ also mean 'flowing body of liquid which lacks surface tension.' The difference is that, while /t, d/ mean 'viscous body of liquid,' /s, z/ mean 'non-viscous body of liquid.' See the following.

- (5-131) a. torori to si-ta hatimitu
do-Past honey

'smooth honey'

b. Haru no ogawa wa sara-sara ik-u yo.
spring Gen stream Top go-Pres Emph

'The clear stream in the spring flows with ripples.'

The voiceless alveolar fricative /s/ also means 'absence of obstruction' or 'ease of movement.' See the following.

- (5-132) a. Higasi no tyoozya no musume ga sorori
east Gen millionaire Gen daughter Sbj

sorori to muko -dono no te o hii-te
bridegroom-Hon Gen hand Obj pull-and

kiN no hasi o wataQ-te iki-mas-u.
gold Gen bridge Obj cross -Ger go-Pol -Pres

'The daughter of the east millionaire with her
bridegroom walks across the gold bridge slowly and
smoothly.'

b. Suuho ga kokoro o kome-te sewa si-ta
Suho Sbj heart Obj put in-and care do-Past

okage de kouma wa suku-suku to sodati-masi-ta.
due to colt Top grow -Pol -Past

'Because Suho took a heartfelt care of the colt, it grew
up rapidly and healthily without any problem.'

'Quietness/calmness' is another meaning expressed by /s/ as in the following.

- (5-133) a. Sosite tyoozya no ie kara siku-siku to musume no
and millionaire Gen house from daughter Gen

nak-u koe ga kikoe -te ki -ta no des -u.
cry-Pres voice Sbj be heard-Ger come-Past Comp Cop-Pres

'Then, from the house of the millionaire, they heard his
daughter sobbing in a small voice.'

- b. ...asi-kosi o moN-de -ru uti ni
 leg-waist Obj rub -Ger-(Cont)-Pres while
suya-suya to oQka-saN ga ne -te simaQ-ta.
 mother Sbj sleep-Ger end up-Past
 '...while he was giving her a massage on the legs and
 the waist, his mother went to sleep peacefully.'

Another recurrent meaning of /s/ is 'refreshingness.' This meaning is a semantic extension of 'non-viscosity.' See the following well-known advertisement of a soft drink first.

- (5-134) SukaQ to sawayaka koka-koora.
 refreshing Coca Cola
 'Spritefully refreshing Coca Cola. = Heavenly refreshing
 Coca Cola.'

Also see the following.

- (5-135) TyoQ to ugoi-ta dake na noni karada ga
 a little move-Past only Cop though body Sbj
sukiQ to si-ta.
 do-Past
 'Although I exercised only a short time, I feel
refreshed.'

The fricative /s/ also indicates 'neatness/smartness' or 'detachedness' when describing personalities or attitudes as in the following.

- (5-136) a. sukiQ to si-ta minari no hito
 do-Past appearance Gen person
 'a neat-looking person'
- b. Haha mo mata sarari to si-ta kimoti de
 mother also again do-Past mind with
 kono hanasi o kiki-nagasi-ta.
 this story Obj hear-flush -Past
 'My mother listened to my explanation and just let
it go, too.'

- c. Sarari to te o kiQ-ta.
hand Obj cut-Past

'She washed her hands of him without regret.'

In contrast /t, d/ appear in mimetic adverbs indicating 'personal sloppiness/sluggishness,' as in the following. Neither /s/ nor /z/ has such a meaning.

- (5-137) a. toroQ to si-ta metuki
do-Past look

'sleepy eyes'

- b. taraQ to si-ta kaQkoo
do-Past appearance

'sloppy appearance'

- c. dara-dara su-ru
do-Pres

'to work half-heartedly'

5.9.2.6. The Bilabial Nasal /m/

The bilabial nasal /m/ means 'murkiness' of some kind. See the following.

- (5-138) a. ...kani ga tor -e -nai-de mago-mago si-te
crab Sbj catch-Pot-Neg-and do-Ger

i -ru no o mi-te yorokobi-masi-ta.
Cont-Pres Comp Obj see-and enjoy -Pol -Past

'[The monkeys] were happy to see that the crabs were at a loss not to be able to get [the persimmons].'

- b. Hutari-tomo mota-mota si-te -ru kara
two -both do-Ger-(Cont)-Pres because

dame na N da yo.
no good Cop Comp Comp Emph

'Both of you are disorganized and slow. That's why [you missed it.]'

- c. Atama ga moya-moya si-te i -ru.
head Sbj do-Ger Cont-Pres

'My head is foggy.'

- d. Kuruma kara moku-moku kemuri ga de -te
car from fog Sbj Cont-Ger

i -ta.
Cont-Past

'Black smoke was pouring out of the car. = The car was
smoking badly.'

The contrast between the bilabial nasal /m/ and the bilabial stop /b/ is clearly demonstrated in the following.

- (5-139) a. moso-moso si-ta tabemono
do-Past food

'tasteless food'

- b. boso-boso si-ta gohan
do-Past cooked rice

'individually grained cooked rice'

In the above, both /moso-moso/ and /boso-boso/ mean that the food is not attractive, lacking a proper amount of moisture. However, while /moso-moso/ describes the bland taste of something like bread without butter or jam, /boso-boso/ describes the texture of such things as stale bread and cheap rice (from the point of the Japanese, who prefer sticky rice), which are easily broken into particles or grains. In other words, the above shows the contrast between 'objects lacking in definite characteristics' and 'breakable objects.'

The bilabial nasal /m/ also indicates 'uneasiness or irrational feeling,' as in the following. This meaning is a variation of 'murkiness,' too.

- (5-140) a. Karami -taku nar -u yoo na kimoti
pick bones-desiring become-Pres like Cop feeling
ga toki-doki mura-mura wai -te ku -ru
Sbj time-time surface-Ger come-Pres
no des-u.
Comp Cop-Pres

'From time to time, I feel an irresistable temptation to start picking bones with him.'

- b. Odori no suki na ozii-saN wa mi-te i -ru
dance Sbj like Cop old man Top see-Ger Cont-Pres

uti ni odori-taku-te muzu-muzu si-te
while dance-want-and do-Ger

ki -masi-ta.
come-Pol -Past

'The old man who loves dancing became itching to dance while he was watching [the monsters dance].'

- c. Kesa wa naN da ka muka-muka su-ru
This morning Top somewhat do-Pres

N des-u.
Comp Cop-Pres

'I don't know why, but I feel nausea this morning.'

5.9.2.7. The Alveolar Nasal /n/

In §5.9.2.2, initial /t, d/ were demonstrated to indicate 'viscosity.' The meaning of /n/ in initial position is similar to this. However, it does not indicate 'abundance of liquid.' Rather, it means the viscosity of an object which does not contain much liquid. Nor does it indicate 'hitting' as exhibited by /t/. The semantic continuum of initial /n/ extends over 'viscosity, stickiness, sliminess, sluggishness, laziness, and unpreparedness.' See the following.

- (5-141) a. ItibaN simai ni hutoi unagi o tukami ni kakari-
very end Adv fat eel Obj grab for start-

masi-ta ga nanisiro nuru-nuru to nuke -ru
Pol -Past Sbj any way come out-Pres

node te de wa tukam-e -mas-eN.
because hand with Top grab -Pot-Pol -Neg

Finally, [the fox] tried to grab the fat eel, but it was so slimy that it slithered through his fingers and he couldn't catch it by the hands.'

- b. neba-neba si-ta ame
do-Past candy

'sticky candy'

- c. Yoku neQ-te i -ru uti ni neOtori si-te
well mix-Ger Cont-Pres while do-Ger

ku -ru.
come-Pres

'As you mix [the fermented beans] well, they become sticky.'

- d. Kodomo ni si-te mire-ba oo-isogi de
child from the point of view of big-hurry in
yaQ-te i -ru katazuke mo oya no me
do -Ger Cont-Pres organization even parent Gen eye

ni wa zitu ni yooryoo o e-nai noro-noro to si-ta
to Top really inefficient do-Past

doosa ni utuQ -te sima -u to i -u
act as appear-Ger end up-Pres Quot say-Pres

wake des-u.
circumstance Cop-Pres

'That is to say, even when a child is putting away [his/her toys] in a big hurry in his/her own way, it looks like a disorganized idle movement to the parents.'

- e. Koo yaQ-te oorai o noso-noso arui -te nee.
this do -and street Obj walk-and Emph

'He walked down the street sluggishly like this.'

Another important semantic category that recurs with initial /n/ is that of 'facially expressing joy or pleasure without vocalization.' See the following.

- (5-142) a. ... bureeki o kake -te kara uNteNsyu no
break Obj apply-and driver Cop
matui-saN wa niko-niko si-te kotae -masi-ta.
Matsui-Hon Top do-and answer-Pol -Past
'After applying the break, Mr. Matsui, the [taxi] driver,
answered the question smiling.'
- b. ONna no ko tati ga yorokoN -de kaNsee o
girl Cop child Pl Sbj be joyful-and cry Obj
age -ru no o otoko no ko wa niya-niya
raise-Pres Comp Obj male Gen child Top
si-te mi -te i -ru.
do-and look-Ger Cont-Pres
'While looking at the girls as they are joyously
screaming, the boys are grinning.'
- c. ObaasaN wa nitaari.
old woman Top
'The old woman smirked.'

Laughing that is accompanied by vocalization on the other hand is subcategorized using mimetic adverbs with other initial consonants. See the following.

- (5-143) a. kara-kara wara-u 'to roar with laughter'
b. keta-keta wara-u 'to laugh noisily'
c. kera-kera wara-u 'to giggle'
d. gera-gera wara-u 'to laugh loudly'
e. kusu-kusu wara-u 'to titter'
f. koro-koro wara-u 'to laugh merrily'
g. hera-hera wara-u 'to snicker'

5.9.2.8. The Bilabial Glide /w/ and Initial Vowels

Bisyllabic mimetic adverbs starting with /w/ and those starting with vowels both mean some kind of 'human or animal emotion and behavior.' The meaning of w-initial mimetic adverbs is 'human noise' or 'emotional upheaval.' See the following.

- (5-144) a. SyokuiNsitu no iriguti no waki ni oi-ta
 teachers' room Gen entrance Gen side at place-Past
 ziteNsya o toimai -te gozyuu-niN tarazu
 bicycle Obj surround-and fifty -person less than

no seeto wa gaya-gaya wa'ya-waya marude
 Gen pupil Top noisily just like

suzume no keNka daQ-ta.
 sparrow Gen fight Cop-Past

'Surrounding the bicycle that [the new teacher] had left
 by the entrance to the teachers' room, the pupils, who
 were less than fifty, were chatting loudly like
 sparrows in quarrels.'

- b. Wasa-wasa to awatadasiku sugos -u.
 busily pass time-Pres

'They spend the time busily in a flurry.'

- c. Yo -neN mo i -ta kobayasi -seNsee
 four-year as much as stay-Past Kobayashi-teacher

no ato na node kodomo-tati no kookisiN
 Gen after Cop because child -Pl Gen curiosity

wa waku-waku si-te i -ta.
 Top do-Ger Cont-Past

'Because [the new teacher came] after the old teacher,
 Ms. Kobayashi, had stayed here for four years, the
 children's curiosity was being roused.'

Just as in monosyllabic mimetic adverbs, the majority of V-initial mimetic adverbs also clearly demonstrate the meaning of 'emotional upheaval.' See the following.

- (5-145) a. Amari kaki -taku -nai koto o kai -te
much write-desiring-Neg thing Obj write-Ger

i -ru node hakador-azu ira-ira si-te
Cont-Pres because progress-Neg do-Ger

i -mas-u.
Cont-Pol-Pres

'Because I'm writing what I don't feel like very much, it
isn't going fast, and I'm frustrated.'

- b. MiNna oro-oro su-ru hituyoo nai N da
everybody do-Pres need Neg Comp Cop

kedo.
Atten

'They don't have to get nervous, you know.'

- c. Itumo seN -go -hyaku -eN de ik-u
always thousand-five-hundred-yen in go-Pres

tokoro o uro-uro su-ru node meetaa ga
distance Obj do-Pres because meter Sbj

ni -kai gurai yokei ni agaQ-tya -u.
two-times about excess Adv rise-Ger.end up-Pres

'Because [inexperienced taxi drivers] get flurried and
drive back and forth before getting to the destination

for which you would normally pay around 1,500 yen,
the meter jumps up about two times more.'

- d. ... akaku nari nagara ozu-ozu to waragutu o
red become as straw boots Obj

sasidasi-masi-ta.
put out -Pol -Past

'... she blushed and nervously handed the straw boots
to [the young man].'

- e. ota-ota su-ru
do-Pres

'to get flurried'

- f. uzu-uzu su-ru
do-Pres
'to be impatient'
- g. iso-iso aruk-u
walk-Pres
'to walk lightheartedly'
- h. uki-uki su-ru
do-Pres
'to be lighthearted'

Another recurrent meaning associated with V-initial mimetic adverbs is 'the involvement of a mass of people or animals.' See the following.

- (5-146) a. uyo-uyo su-ru
do-Pres
'to swarm'
- b. uzya-uzya i-ru
exist-Pres
'to be in swarms'

5.9.2.9. The Alveopalatal Glide /y/

The alveopalatal glide /y/ in initial position indicates 'leisurely motion, unreliable movement, or swinging motion.' See the following.

- (5-147) a. Yura-yura to si-ta waiN-zerii no yurameki.
do-Past wine-jelly Gen swaying
'Soft swaying of wine jelly.'
- b. Mada yaQto aruk -e -ru ka aruk -e -nai ka
still with difficulty walk-Pot-Pres Inter walk-Pot-Neg Inter
no watasi wa Tomo no ne -te i -ru nedoko
Cop I Top Tomo Sbj sleep-Ger Cont-Pres bed
no gururi o akai tyootiN o moQ-te
Gen circumference Obj red lantern Obj hold-and
yoti-yoti to arui-te i -ta.
walk-Ger Cont-Past

'I, still being a toddler, would carry a red lantern and,
with tottering steps, walk around the bed where Tomo
 was lying.'

- c. Uti wa nanika yota-yota si-ta no ga
 my house Top something do-Past Comp Sbj
 de -te ki -mas-u.
 exit-Ger come-Pol -Pres

'In my house, staggering [roaches] come out.'

- d. yobo-yobo to si-ta oziisaN
 do-Past old man

tottering old man

- e. Matumoto ga yuOkuri hoomuiN.
 Matsumoto Sbj get home

'[The runner] Matsumoto got home leisurely [after a
 homer].'

- f. Yururi to goraN kudasai.
 look please

'Please take your time and look around.'

5.9.3. The Differences between C₁ and C₂

A survey of the above two sections, §5.9.1 and §5.9.2, clarifies that the first consonant generally concerns the tactile structure of the involved object in terms of 'stretched surface, hard surface, soft surface,' and so on, while the second consonant concerns the type of movement in terms of 'explosion, hitting, moving in and out,' and so on. For instance, many bisyllabic mimetic adverbs that have /t/ in the second syllable exhibit the meaning of 'hitting.'

(5-151)	as C1	as C2
/m/	murkiness	?
/n/	viscosity	bending, elasticity
/r/	- - -	rolling
/w/	human noise, emotion	softness, haziness
/y/	leisurely motion	noise, childishness

Of the above, at least /n/ and /r/ in the second syllable are related to 'movements', and /n/ in the first syllable to 'tactile senssation.' The consonants /w/ and /y/, on the other hand, are peculiar. They mean distinctively different things in the first and the second syllable. The explanation may be found in the historical changes of intervocalic consonants, but we will not concern ourselves with this question at this point.

One interesting question concerns the absence of /r/ in the first syllable. As stated above, /r/ in the second syllable is related to 'movements' just like obstruents. However, it does not have a tactile meaning and is absent from the first syllable. In other words, /r/ is a consonant relating solely to 'movements.'

The phonotactic constraint on the occurrence of /r/ in word-initial position is not only shared by the present-day native stratum; this constraint already existed in Old Japanese. However, /r/ in the other environments is not at all restricted. The relationship between the phono-semantic constraint of /r/ in the mimetic system and its phonotactic constraint in the rest of Japanese seems to be an interesting topic to pursue in the future.

5.10. Summary

The phono-semantic correlations of bisyllabic mimetic adverbs are as follows.

The voicing feature of initial consonants of bisyllabic mimetic adverbs concerns the weight/mass of objects. In addition, initial consonants of bisyllabic mimetic roots describe the tactile nature of objects. This semantic dimension closely parallels the physical

properties of the organs that are involved in the production of initial consonants themselves. These two semantic dimensions are summarized in the following.

(5-152)

/p/=breakable tense surfaces	light/small/fine
/b/=breakable tense surfaces	heavy/large/coarse
/t/=lack of surface tension, subduedness	light/small/fine
/d/=lack of surface tension, subduedness	heavy/large/coarse
/k/=hard surface	light/small/fine
/g/=hard surface	heavy/large/coarse
/h/=weakness, softness, unreliability, indeterminateness	
/s/=non-viscous body, quietness	light/small/fine
/z/=non-viscous body, quietness	heavy/large/coarse
/m/=murkiness	
/n/=viscosity, stickiness, sliminess, sluggishness	
/w/=human noise, emotional upheaval	
/y/=leisurely motion, swinging motion, unreliable motion	

Palatalization means 'childishness' or 'excessive energy.'

Initial vowels generally control the semantic dimension of the shape of the first object or movement. The vowel /e/ is an exception.

(5-153)	/i/: line
	/e/: inappropriateness
	/a/: flat plane
	/o/: roundish object
	/u/: protrusion

Medial /Q, N/ are used for emphasis.

Second consonants define types of movement. The movement indicated by a bisyllabic mimetic adverb is in agreement with the physical movement of the vocal organ used for its second consonant. See the following.

- (5-154) /p, b/=explosion, breaking, decisiveness
 /t/=hitting of a surface, coming into close contact, complete agreement
 /k/=opening, breaking up, swelling, expanding, puffing out, emission from inside, surfacing=inward/outward movement
 /s/=soft contact, friction
 /m/=?
 /n/=bending, elasticity, unreliability, lack of force, weakness
 /w/=softness, faintness, haziness
 /y/=sound from many sources, haziness, childishness
 /r/=rolling, fluid movement

Second vowels control the semantic dimension of the size/shape of the second object or movement as below. The vowel /e/ is again an exception.

- (5-155) /i/: +tense, +small, -large, -protrusion
 /e/: inappropriateness
 /a/: -tense, -small, +large, -protrusion
 /o/: -tense, -small, -large, -protrusion
 /u/: -tense, +small, -large, +protrusion

Vowel length indicates the spatial or temporal length of the event or object as below.

- (5-156) Short: Spatially or temporally short.
 Long: Spatially or temporally long.

CHAPTER 6 HISTORICAL CONSIDERATIONS OF MIMETIC WORDS

6.1. Palatalization in Mimetic Words

6.1.1. The Distribution of Palatalization

A phonological description of Japanese almost inevitably includes a lengthy discussion of palatalized syllables. (See McCawley 1968, Hattori 1951, for example.) This is because the phonological system of Japanese is asymmetrical with respect to palatalized (or sharp) and non-palatalized (or plain) syllables.

In setting up four strata of phonology in Japanese, the native, the Sino-Japanese, the onomatopoeic, and the foreign, McCawley (1968) lists the permitted combinations of palatalized and non-palatalized consonants with the vowels for each of the three strata as follows.

Table 6-1

	Native	Sino-Japanese and Onomatopoeia	Foreign
Cu	x	x	x
Cyu		x	x
Co	x	x	x
Cyo		x	x
Ca	x	x	x
Cya	x	x	x
Ce	x	x	x
Cye			x
Ci			x
Cyi	x	x	x

(McCawley 1968:65)

Note that, in the above, Sino-Japanese and onomatopoetic, or mimetic, morphemes are treated together. This gives the impression that the Sino-Japanese and the onomatopoetic strata are identical as to the features of palatalization. A closer look at the distribution of palatalized syllables proves otherwise.

In monosyllabic mimetic roots, there is only one location where palatalized and plain syllables can contrast, and most consonants that are permitted initially are palatalizable. See below.

(6-1)	pyoN-pyoN	'jumping joyfully'
	byuN-byuN	'going fast against a strong wind'
	hyoi to	'jumping over something casually'
	tyuu-tyuu	'sucking with noise'
	syaN to	'in a firm posture'
	zyuQ to	'with the sound of water on a heated plate'
	kyaQ to	'with a scream'
	gyuQ to	'holding hard onto something'
	nyaa-nyaa	'cat's meowing'

In bisyllabic mimetic roots, on the other hand, the following stringent constraints on the distribution of palatalized syllables exist.

First, palatalization cannot appear twice in the same root; that is, roots of the form *CyVCyV do not exist. The permissible strings are either CyVCV as below (6-2a) or CVCyV as below (6-2b). Note that [pi, bi, ti, si, zi, ki, gi, ni, mi, ri] are treated as /Ci/ and not as /Cyi/ in this study for reasons explained later in this section.

(6-2)	a.	pyoko-pyoko	'something light flip-flops'
		kyoro-kyoro	'to shift one's focus from one place to another inquisitively'
		tyara-tyara	'flashy'

b. pitya-pitya	'to move something thin, flat, and flexible like a hand over the surface of water or a watery object in such a way that a splashy noise is made'
petya-petya	'to talk on and on about something insignificant'
kusya-kusya	'crumpled'
katya-katya	'several hard objects such as a bundle of keys clutter and make noise'

Secondly, in the second syllable of bisyllabic mimetic roots, only the alveolar sounds /t, (d), s, z, n/ can be palatalized, as in (6-3a) below. The flap /r/ is alveolar, but it is not palatalizable in the second syllable. Since it does not appear in the first syllable, the flap /r/ is not palatalizable anywhere in bisyllabic mimetic roots. For lack of a better term, the term 'alveolar' will be used to refer to only /t, (d), s, z, n/ in this dissertation. In the first syllable, by contrast, most of the consonants that are allowed to appear initially may be palatalized, as in (6-3b).

(6-3)	a. kutya-kutya	'to chew something like gum in a messy way'
	kasya-kasya	'dry light objects scratch each other and make noise'
	uzya-uzya	'to swarm around'
	kunya-kunya	'something like a melted iron bar bends'
	b. pyoko-pyoko	'to flip-flop'
	hyoko-hyoko	'to flip-flop'
	kyoro-kyoro	'to look around inquisitively and indeterminately'
	gyoro-gyoro	'to look around inquisitively and indeterminately with eyes bulging out'
	tyara-tyara	'cheap and flashy'

syuru-syuru	'to go through a narrow pipe and make a hissing noise'
zyoki-zyoki	'to cut with scissors unhesitantly'
nyoro-nyoro	'the winding movement of something like a snake'

The contrast between /d/ and /z/ is generally neutralized everywhere in Japanese before /y/; therefore, only /zy/ is listed in the above. For the first syllable, the strings /my, by/ do not show up in my file, but this seems to be accidental.

The third constraint is the following. If palatalization occurs in a root that contains an alveolar stop or fricative, it must be the alveolar stop or fricative that is palatalized, whether it be in the first syllable or in the second syllable. Other sounds in the first syllable may be palatalized only in the absence of an alveolar stop or fricative in the second syllable. The only apparent exception to this rule is /kyo'to-kyoto/ 'to look around indeterminately,' whose semantic similarity to /kyoro-kyoro/ 'to look around indeterminately' allows us to hypothesize that it was formulated analogously to resemble the latter. (A "correct" form /kotyo-kotyo/ 'touching lightly' exists; semantically it resembles /koto-koto/ 'hitting lightly' more than /kyoto-kyoto/ does.)

It seems that a separate restriction on the consonants which disallows similar consonants in both first and second syllables almost precludes the possibility of having to choose between the first- and the second-syllable alveolar sounds. The sole exception is /netya-netya/ 'sticky.' In this case, however, */nyeta-nyeta/ is not possible because of the unacceptability of */nye/.

The second of the constraints on palatalization above states that, while palatalization of alveolars is allowed in both the first and the second syllable, palatalization of other sounds is limited to the first syllable. This, coupled with the third constraint (the preference of alveolars over non-alveolars for palatalization) works to ensure that

non-alveolars are less frequently palatalized than alveolars. The limited scope of palatalization of non-alveolars is clear statistically.

Figure 6-1 breaks down the consonantal combinations of the 86 bisyllabic reduplicative adverbs in my data which have palatalized syllables; these items are listed in Appendix E. The consonantal elements in the first and the second syllable are represented by C_1 and C_2 respectively. They may be Cy or C. Under C_1 , all consonantal elements that appear in the first syllable are listed. To the right of C_2 , on the other hand, all consonantal elements that appear in the second syllable are listed.

Of these, only seven involve palatalization of non-alveolars. The rest involve alveolars. Within the latter category, 48 involve palatalization in the second syllable and 31 in the first syllable.

The oddity of palatalization of non-alveolars is also statistically clear when we consider the vowels that accompany the consonants. Tables 6-2, 6-3, and 6-4 below show the combinations of vowels in the 86 items used for Figure 6-1.

Table 6-2 summarizes the vowel combinations in forms with /ty, sy, zy, ny/ in the first syllable. This shows that /a, o, u/ appear in the first syllable following palatalization. Of the three vowels, /a/ appears most frequently; /u/ least frequently. As for the second syllable, where the vowel follows a simple consonant, /i, a, o, u/ can appear. The vowel /e/ does not appear in the second syllable. This is a general constraint in mimetic words.

Table 6-3 on the other hand summarizes the vowel combinations in forms with /ty, sy, zy, ny/ in the second syllable. This also shows that /a, o, u/ appear in the second syllable following palatalized consonants. There are 38 cases of /a/ as opposed to 9 cases of /o/ and one case of /u/; /a/ is by far more frequent than the other two vowels. For the first syllable, on the other hand, all five vowels /i, e, a, o, u/ are possible. Aside from /e/, which is generally limited in Japanese, the proportion of the vowels is roughly equal, with only a slight tendency of /u/ > /o/ > /a/ > /i/.

As a whole, after /ty, sy, zy, ny/, 52 cases involve /a/, 21 cases /o/ and 6 cases /u/. The vowel /a/ is the predominant vowel in palatalized syllables. As for the vowels that follow simple consonants in these morphemes, all vowels except /e/ are involved in palatalized syllables more or less equally.

When we shift our focus to the seven cases with /ky, py, hy, gy/ in the first syllable, we find that the situation is drastically different from the above. In Table 6-4, there are only two combinations of vowels; namely, /-o-o/ and /-u-u/. And, of the seven cases, six are of the former type, /-u-u/ being limited to only one case.

C2 \ C1	ty sy zy ny	r k b p t d s z g m n w y	total	
py		1	1	7
hy		2 1	3	
ky		1 1	2	
gy		1	1	
ty		4 6 2 1	13	31
sy		3 3 2	8	
zy		3 3 1	7	
ny		2 1	3	
p	4 5		9	48
b	5 5		10	
h	1		1	
k	3 2 1		6	
g	4 4 2		10	
m	3 2 2		7	
w/Ø	1 2		2	
n	2		2	
t				
d	1		1	
s				
z				
y				
total	19 20 3 6	16 15 5 1 1	86	
	48	38		

Figure 6-1: Consonant Combinations in Palatalized Mimetic Adverbs

Table 6-2: Forms Containing /ty, sy, zy, ny/ in the First Syllable

	V ₁ in C ₁ yV ₁	i	e	a	o	u	total
V ₂							
i				5	6		11
e							
a				6			6
o				1	5		6
u				2	1	5	8
total				14	12	5	31

Table 6-3: Forms Containing /ty, sy, zy, ny/ in the Second Syllable

	V ₂ in C ₂ yV ₂	i	e	a	o	u	total
V ₁							
i				6	1		7
e				5	1		6
a				8			8
o				9	6		15
u				10	1	1	12
total				38	9	1	48

Table 6-4: Forms Containing /ky, py, hy, gy/ in the First Syllable

	V ₁ in C ₁ yV ₁	i	e	a	o	u	total
V ₂							
i							
e							
a							
o					6		6
u						1	1
total					6	1	7

Interestingly, none of the above constraints and tendencies applies to Sino-Japanese morphemes, which came into Japanese as erudite words. First of all, in bisyllabic words from the Sino-Japanese stratum, one finds numerous examples where palatalization appears in both syllables. See the following.

(6-4)	kyasya	'to be fragile'
	kyooryuu	'dinosaur'
	kyuukyo	'hurriedly'
	gyaQkyoo	'adverse circumstances'

Moreover, in the Sino-Japanese stratum, there is no difference between the role of the first syllable and the role of the second syllable. Nor is there any difference between the alveolars and the non-alveolars. Palatalization appears in both syllables with an essentially identical set of consonants: /py, by, hy, ty, (dy), sy, zy, ky, gy, my, ny, ry/.

One might object that the unit to be compared is the bisyllabic morpheme, not the bisyllabic word, but in that case, there are only four types of morphemes that are relevant to our discussion here: namely, ki-, ku-, ti-, and tu-ending morphemes. The final vowels, /i, u/, of these morphemes, however, were added when the corresponding Chinese monosyllabic morphemes originally ending in a consonant were incorporated into Japanese. Hence, if palatalization of Chinese origin appears in such morphemes, one can expect it only in the first syllable as in the following.

(6-5)	pyaku ~ hyaku ~ byaku	'hundred'
	tyoku	'straight'
	syutu	'to depart'
	zyutu	'method'
	kyoku	'extreme'
	gyoku	'ball'

myaku	'pulse'
ryaku	'simple'

Thus, the phonotactic constraints so powerful in the onomatopoetic stratum are irrelevant in the Sino-Japanese stratum.

The same thing can be said about the vowels that accompany palatalized consonants. In Sino-Japanese morphemes, of the three vowels /a, o, u/, /o/ is most frequent, and /a/ is least frequent. In the dictionary by Suzuki et al.(1975), of the 855 Sino-Japanese morphemes that involve palatalization, 516 entries involve /o/; 254 /u/; and only 85 /a/. The contrast is clear. In palatalized syllables in the Sino-Japanese stratum, /o, u/ appear more frequently than /a/. In the mimetic stratum, on the other hand, /a/ is over-represented.

Thus, the Sino-Japanese and the mimetic strata are quite dissimilar as to the features of palatalization.

One problem that should be discussed at this point is the difference between McCawley's and the present treatment of phonetic strings such as [pi, bi, ki, gi] in mimetic words. In Table 6-1 from MacCawley (1968), these phonetic strings are phonologically treated as Cyi; there is no Ci-syllables for the onomatopoetic stratum in Table 6-1. On the other hand, the above analysis of the constraints on palatalization in the mimetic stratum depends upon the treatment of such strings as Ci; if this ground were rejected and McCawley's treatment were accepted, /pitya-pitya/ in (6-2b), for instance, would have to be reanalysed as */pyitya-pyitya/, invalidating my entire argument about the phonotactic constraints of palatalization. Bisyllabic mimetic morphemes of the form, *CVkyi-, *CVryi-, *CVbyi-, *CVmyi-, *pyitV, and so on, which are not possible in the above description of mimetic words, would have to be accepted. The question, therefore, is a critical one.

It should be first pointed out that the distinction between Ci and Cyi in the foreign stratum in Table 6-1 is made on the basis of the existence of such pairs as [ti:mu] 'team' vs. [či:zu] 'cheese' which are phonemicized as /ti:mu/ and /tyi:zu/ respectively. Following this lead, McCawley phonemicizes such syllables as [pi, bi, ki, gi] in the native, Sino-Japanese and mimetic strata as Cyi-syllables /pyi, byi, kyi, gyi/ instead of /pi, bi, ki, gi/. This is because, in these strata, [či] exists but [ti] does not; phonemicizing the phonetically simple syllables as phonologically sharp syllables simplifies the phonotactics of these strata.

In the present analysis, on the other hand, only /Cyu, Cyo, Cya/ are treated as palatalized syllables in the mimetic stratum; */Cyi/ is not considered to exist in mimetic words.

One reason for rejecting Cyi for the mimetic stratum is the absence of bisyllabic morphemes /*CVkya-, *CVrya-, *CVbya-, *CVmya-, *pyatV-, etc./, as accounted for by the constraints described above, which would be expected if [CVki, CVri, CVbi, CVmi, pitV, etc.] were interpreted as /CVkyi-, CVryi-, CVbyi-, CVmyi-, pyitV, etc./. That is, the constraints generally set up for palatalized syllables consistently apply in the case of the unambiguously palatalized syllables /Cya, Cyo, Cyu/. It would not make sense to say that the rules do not apply only in the case of the problematic /Cyi/.

6.1.2. The Sound Symbolism of Palatalization

The peculiar distributional constraints on palatalization in mimetic words are related to the role of palatalization in mimetic words, i.e., its sound symbolism.

The sound-symbolic association of palatalization extends over a semantic continuum of 'childishness, immaturity, instability, unreliability, uncoordinated movement, diversity, excessive energy, noisiness, lack of elegance, and cheapness.' A large number of minimal pairs demonstrate this clearly. See the following.

(6-6)	a.	pyoko-pyoko	'jumping around imprudently'
		poko-poko	'with holes here and there'
	b.	hyoro-hyoro	'looking thin and weak'
		horo-horo	'weeping elegantly'
	c.	tyara-tyara	'flashy and cheap'
		tara-tara	'thick creamy liquid drips'
	d.	tyoro-tyoro	'unreliably'
		toro-toro	'thick liquid'
	e.	kyoro-kyoro	'to look around curiously without focusing on one thing'
		koro-koro	'something hard and round rolls on'
	f.	syuru-syuru	'something goes through a narrow space and makes a noise'
		suru-suru	'something passes smoothly'
	g.	nyoro-nyoro	'a snake's wriggly and curving movement'
		noro-noro	'slow movement'
	h.	petya-petya	'to talk on and on about insignificant matters'
		peta-peta	'something sticks on'
	i.	patya-patya	'to hit the surface of water making a lot of splash'
		pata-pata	'large birds move their wings'
	j.	katya-katya	'keys hit each other and make a variety of noises'
		kata-kata	'something solid and square hits a hard surface and makes a homogeneous sound'

The following palatalized mimetic adverbs do not have minimally contrastive counterparts. Nevertheless, we can identify the meaning of 'incoherency/diversity.'

(6-7)	munya-munya	'to mutter something unintelligible'
	uzya-uzya	'to swarm'

The semantic continuum of palatalization stems from the foremost association of palatalization of alveolar stops and fricatives with 'childishness' or 'immaturity.' Studies of language acquisition report palatalization as one of the universal characteristics of early stages of children's language acquisition. It is also reported as one of the commonest devices of Baby Talk, i.e., adult modification of speech to children (Ferguson 1977). This is quite clear in Japanese. I have observed that children who have not mastered alveolar sibilants quite regularly palatalize them as in the following.

(6-8)	a. [ʒoo] < [zoo]	'elephant' /zoo/
	b. [ʃuuʃ] < [ʃuus]	'juice' /zyuusu/
	c. [kuču] < [kæu]	'shoe' /kutu/
	d. [ša] < [sa]	syllable of 'sa' /sa/
	e. [šo] < [so]	syllable of 'so' /so/

Adults' identification of this feature as a symbol of immature speech is reflected in their speech to young children as in the following.

(6-9)	/tiQɽyai/ < /tiɽgai/	'small'
	/tabemaɽyuka/ < /tabemaɽyuka/ < /tabemaɽuka/	'Will you eat?'
	/kuɽyai/ < /kuɽgai/	'stinking'
	/sɽamui/ < /sɽamui/	'cold'
	/sɽugoi/ < /sɽugoi/	'wonderful'

Furthermore, it seems to be reflected in the vocabulary in the native stratum that relates to childhood activities, childish movements, and endearment as in the following.

(6-10)	osyama	'precociousness'
	otyame	'playfulness'

zyareru	'to frisk'
yaNtya	'mischievous, wild'
syaburu	'to suck (a nipple, for example)'
akatyaN	'baby'
(tyaN < saN)	

The above explains why the palatalization of alveolars is more prevalent than that of other consonants. Alveolars are easier to palatalize, and alveo-palatals are directly tied to the meaning of 'childishness.'

6.1.3. Dialectal Evidences for the Primacy of Alveo-Palatals

The basicness of alveo-palatals vis-a-vis other palatalized consonants in mimetic words seems to be one thing that is shared by various dialects across Japan. Tsuzuku (1965) lists a number of dialectal forms various dialects of Japan. From the way he presents the data, it appears that only those forms that are markedly different from the Tokyo dialect are listed. The data are not systematic, but it is striking that he reports no case of non-alveolar consonants that are palatalized. All cases of palatalization included in Tsuzuku's list are /ty, zy, sy/, as below.

(6-11)	tya-tya (Aomori)	'hurriedly'
	tyatyabui (Okinawa)	'rain falls intermittently'
	tyao-tyao (Aomori)	'the sound of tearing silk or paper'
	tyara-tyara (Iwate)	'hurriedly'
	tyara-tyara (Shiga)	'wooden clogs'
	tyao-tyao (Koochi)	'to flatter'
	tyaa-tyaa (Shiga)	'bath'
	tyai-tyai (Shiga)	'bath'
	tyoko-tyoko-naru (Shiga)	'to squat down'

tyon-tyon (Okinawa)	'water drips'
metyo-metyo (Aomori)	'the way one stamps on something'
watya-kutya (Ehime)	'everyone speaks out as they like'
waya-kutya (Shiga)	'to be entangled and messy'
beQsyari (Ishikawa)	'always'
yaQsyari (Nara)	'looking fragile'
guQsyari (Iki)	'the state of being downhearted'
zyuNzyu (Shiga)	'to eat meat as one cooks it in a pan'
zyabo-zyabo (Aomori)	'the sound one makes when crossing a shallow stream'
zyawa-zyawa (Aomori)	'to feel chilly'
zyoNga-zyoNga (Akita)	'the noise of a rice processer'

6.1.4. Historical Interpretation of the Constraints

The peculiar distributional pattern of palatalized syllables may be reinterpreted, taking into account the primacy of alveo-palatals and their meanings. The predominance of palatalization of alveolars points to a stage when palatalization occurred only with alveolars with the sense of 'childishness.' As the meaning was extended to 'instability, unreliability, etc.,' palatalization would have been separated from alveolars. That is, it would have been reinterpreted as an independent sound symbolic factor. It would have spread to other consonants at this stage to add one or the other of the above meanings to the string. When this happened, palatalization of forms containing no alveolars naturally went to the first syllable instead of the second syllable because of the general preference of the first syllable as the site of semantic contrast.

The phonotactic constraints on bisyllabic mimetic morphemes with palatalized syllables may be reformulated to reflect the above hypotheses (6-12).

- (6-12)
- a. Palatalization is marked underlyingly in the following way: y-CVCV. Its position need not be specified underlyingly.
 - b. Alveolars are first palatalized.
 - c. If (b) does not apply, palatalization goes to the first syllable.

The derivations of /pyoko/, /tyara/, and /pitya/ are as follows.

(6-13)

- | | | | |
|----|--------|--------|--------|
| a. | y-poko | y-tara | y-pita |
| b. | ----- | tyara | pitya |
| c. | pyoko | ----- | ----- |

6.1.5. Comparison of the Mimetic, Native, and Sino-Japanese Strata

When the inventory of palatalized syllables is expressed in terms of Cyu, Cyo, Cya and so on, the Sino-Japanese and mimetic strata seem to share a similar kind of palatalized syllables. However, as we have seen so far, the phenomena of palatalization in the two strata are qualitatively very different.

We have seen that the phonotactic constraints on palatalized syllables so powerful in the onomatopoeic stratum are irrelevant in the Sino-Japanese stratum. Also, the consistent sound-symbolic association of palatalization with the semantic continuum of 'childishness' is absent in the Sino-Japanese stratum. With regard to palatalization, the onomatopoeic stratum shares more in common with the native stratum.

Suzuki (1962) reports that there are two kinds of voicing in non-mimetic words. One is purely referential, or non-iconic. The other shares the same sound-symbolic

property as the voicing phenomenon of the mimetic system. See the following pairs for the latter kind.

(6-14)	a.	kara	'husk, hull, shell, cast-off skin, eggshell'
		gara	'chicken bones for stock -- less valuable part of chicken'
	b.	tama	'ball'
		dama	'lumps in cream sauce'
	c.	tori	'chicken, bird'
		dori	'unedible internal organs of chicken'

The same can be said of palatalization in the native stratum. One kind is purely referential, as in the following. The historical changes to palatalized syllables in this category are commonly considered to have taken place before the end of the Muromachi Period (around the 15th century), probably under the influence of massive Chinese loan words (Sato 1977). Note that /ryV, kyV/ appear word-medially in this category.

(6-15)	irassyaru < iraseraru	'to come (honorific)'
	oQsyaru < ooseraru	'to say (honorific)'
	karyuudo < kariudo	'hunter'
	akyuudo < akiudo	'merchant'

The second category is the one seen above in (6-10). This category is closely tied to the onomatopoeic stratum. The meaning of palatalization in this category relates to 'childishness.'

Also, look back at Table 6-1. McCawley identifies /Cya, Cyi/ for the native stratum and /Cya, Cyi, Cyu, Cyo/ for the onomatopoeic stratum. The syllables /Cyu, Cyo/ are absent for the native stratum in Table 6-1. Recall that /Cya/ is the most dominant palatalized syllable in the onomatopoeic stratum, too.

Based upon the documentation of palatalization after the massive borrowing and incorporation of Chinese words, it is often stated that palatalization was added to Japanese under the influence of Chinese loan words. See, for example, Mabuchi (1971). However, the differences between the Sino-Japanese and the mimetic strata and the resemblances between the native and the mimetic strata leads us to the claim that palatalization in the mimetic words is a spontaneous process indigenous to Japanese rather than a product simply triggered by Chinese loan words. In the native stratum itself, we identify two different kinds of palatalization; the one associated with the mimetic words seems to have antedated Chinese influence. What erudite Chinese loan words probably did in this regard was to legitimize the existing palatalization in casual speech. The dialectal data also seem to support this view.

6.2. The Bilabial Stops /p, b/ in the Second Syllable

It is generally agreed that proto-Japanese had word-initial */p/ as the voiceless counterpart of /b/ and that initial */p/ was replaced first by /p/ and then by /h/ in the regular part of Japanese phonology (Hashimoto 1960; Sato 1977). Mimetic words, on the other hand, retain both /p/ and /h/ word-initially, and /b, p, h/ contrast with each other word-initially.

The above opposition between /p/ and /h/ was introduced word-initially in mimetic words by the addition of /h/, but the same opposition did not occur word-medially. Except in forms containing geminate clusters such as /saQpari/ and a few mimetic words such as /supo-supō/ and /tapo-tapō/, we do not find medial /p/ in contemporary mimetic words. Neither is /h/ common word-medially. The exceptions are /gohōN/ 'sound of coughing,' /ehōN/ 'sound of clearing one's throat,' /ohōN/ 'sound of clearing one's throat,' and the like, all of which refer to sounds produced when clearing the throat. Note the limitation on

these forms; they must have a same vowel in the first and the second syllable. According to Yamaguchi (1973), this was the case in Middle Japanese, too.

In any case, it is agreed that in the ordinary strata of Japanese grammar the bilabial voiceless fricative /ɸ/, a reflex of */p/, which gave rise to /h/ initially merged into /w/ intervocally within morphemes (*p > ɸ > h (initially); *p > ɸ > w (intervocally)). Therefore, we might suspect that the same thing happened with medial */p/ in mimetic words. Indeed, the change of Middle Japanese /sɪɸo-sɪɸo/ to /siwo-siwo/ to contemporary /sio-sio/ has been documented. In addition, the semantic dissimilarity between initial /w/ and medial /w/, as we saw in §5.9.3, supports that this is what happened with at least some cases of */p/.

There is, however, an indication that medial */p/ took a different course in mimetic words for the most part. In §2.2.2.2.2, we saw that the distribution of medial /p, b/ is the reverse of other obstruents. Voiced and voiceless obstruents do not contrast intervocally. For obstruents other than /p, b/, this means voiced obstruents are largely absent intervocally. For /p, b/, on the other hand, the situation is reversed. Many examples of intervocalic /b/ exist; cases of intervocalic /p/ are extremely rare. In other words, /b/ appears precisely where other voiced obstruents may not, while /p/ does not appear precisely where other voiceless obstruents may. This indicates that intervocalic */p/ in mimetic words changed to /b/.

More evidence for a historical shift from */p/ to /b/ is the synchronic alternation between /p/ and /b/ in some bisyllabic mimetic adverbs as in the following.

(6-16)	tyo ɸ i-tyo ɸ i	tyo ɸ iQ	tyoQ p iri	'in a small amount'
	ga ɸ u-ga ɸ u	ga ɸ uQ	gaQ p uri	'in a large amount'
	ga ɸ o-ga ɸ o	ga ɸ oQ	gaQ p ori	'in a large amount'
	sa ɸ a-sa ɸ a		saQ p ari	'in a cool attitude'
	zu ɸ a-zu ɸ a	zu ɸ aQ	zuQ p ari	'unhesitantly'

As stated many times, the functional load of the second syllable in bisyllabic mimetic adverbs is not as heavy as that of the first syllable. In particular, the feature of voicing generally is distinctive only in the first syllable. The change from */p/ to /b/ in the second syllable occurred without affecting the semantics of these bisyllabic mimetic adverbs.

The reason intervocalic */p/ did not shift to /ɸ/ and eventually to /w/ in bisyllabic mimetic adverbs, on the other hand, relates to the function of the stop and the fricative in the second syllable. Recall that the alveolar stop /t/ means 'hitting' in the second syllable; the alveolar fricative /s/, on the other hand, means 'friction.' They are contrastive, and their meanings are iconically tied to the physical properties of the sounds themselves. Likewise, the bilabial stop /b/ means 'breaking,' a physical property of the bilabial stop itself. Shifting */p/ to /ɸ/ in the second syllable in bisyllabic mimetic adverbs would have resulted in a disruption of the systematic iconic relationship.

In contrast to the disappearance of intervocalic */p/ in the rest of the grammar due to a general weakning process, mimetic */p/ apparently was generally replaced by /b/ instead of /ɸ/ in order to preserve the sound symbolism of the bilabial stop. In other words, the change of mimetic */p/ to /b/ would have happened concurrently with the shift of */p/ to /ɸ/ in the rest of the grammar.

CHAPTER 7 CONCLUDING REMARKS

7.1. Comparisons of Monosyllabic and Bisyllabic Adverbs

In this section, I compare and contrast monosyllabic and bisyllabic mimetic adverbs.

Many features are shared by monosyllabic and bisyllabic mimetic adverbs. In both monosyllabic and bisyllabic mimetic adverbs, tactile sensations figure prominently: in both, initial consonants describe the tactile nature of the objects. Palatalization means 'childishness.' Vowels control the semantic dimension of size and shape of affected areas, and their length the contrast of spatial or temporal length. Final consonants indicate directionality and force of the movement. And the number or repetitions is related to phase.

A fundamental difference exists, however, between monosyllabic and bisyllabic mimetic adverbs concerning the extent of their iconicity. Monosyllabic mimetic verbs are more likely to describe sounds than bisyllabic mimetic adverbs. By contrast, bisyllabic mimetic forms are used to describe more abstract ideas than monosyllabic mimetic adverbs.

A case in point is the difference between the use of /h/ in monosyllabic mimetic adverbs and the use of /h/ in bisyllabic mimetic adverbs. In monosyllabic mimetic adverbs, /h/ is always related to 'breath.' In bisyllabic mimetic adverbs, /h/ means 'weakness, softness, unreliability, indeterminateness,' more abstract and less iconic properties than 'breath.'

Comparisons of semantically similar monosyllabic and bisyllabic mimetic adverbs also demonstrate the above point. For instance, let us compare /paN/ and /paka/. Both of them are used for describing 'breaking,' as below. However, while /paN/ can describe a sound,

/paka/ cannot. The latter describes the manner of breaking and the tactile nature of the object involved.

- (7-1) Huusen ga pan to wareta.
balloon Sbj break

A balloon blew up with a (small) bang.'
- (7-2) Suika ga pakaQ to wareta.
watermelon Sbj break

'A watermelon split wide open.'

The above difference derives from the difference in the levels of abstraction of the sound units in the two classes. In monosyllabic mimetic adverbs, the first consonant for instance is treated as an indivisible semantic unit and it can indicate an unanalyzed extralinguistic entity. On the other hand, in the case of consonants of bisyllabic mimetic adverbs, the phonological role of each consonant is more abstract; in its most iconic use, a consonant is broken up into two distinct semantic dimensions, 'tactile nature' and 'movement,' and each consonant realizes only one of the two dimensions in a given environment. Hence, consonants in bisyllabic mimetic adverbs cannot phonetically approximate natural sounds.

7.2. Prospects for Further Studies

In this dissertation, I have shown that the system of mimetic words in Japanese is a linguistic system and that its study can be successfully pursued. One of the implications of this study is its relevance to the discussion of sound symbolism in general. The study of Japanese mimetic words offers a unique opportunity to investigate sound symbolism where it exists as a coherent system. In addition, it is hoped that this study provides a model for the study of other languages where sound symbolism is known to figure prominently in the grammar. While the particular aspects of sound-symbolic phenomena are expected to be language-specific, and they must first be pursued carefully within each specific language, it

will be an interesting task to compare other independently studied systems with the system of Japanese.

A cultural correlate of this mimetic system will be also an interesting topic to pursue. The task of translating the mimetic forms into English brought into focus the Japanese preoccupation with tactile sensations. English, on the other hand, seems to be indifferent to this domain, and it is usually very difficult to come up with English approximations that do justice to the semantics of Japanese mimetic words in this respect. This characteristic of Japanese mimetic words has been pointed out impressionistically by Kindaichi (1978). The present study clarified the structural correlate of this impression. As described above, the function of the first sound in bisyllabic mimetic words is restricted to indicating the tactile nature of the object involved. In this sense, tactile senses are primary. This kind of linguistic preoccupation in a subset of a grammar is expected to play a role in other linguistic and cultural areas, too. For example, Japanese metaphors may be found to center around tactile senses more than English. Or, tactile senses may be found to play a significant role in artistic expressions. It will be an interesting task to look for evidence of this kind of cultural preoccupation in a larger cultural context.

Another major implication concerns the relationship between the sound-symbolic system and the historical sound changes of Japanese. The comparison of palatalization in mimetic words and palatalization in Sino-Japanese words demonstrated that a careful study of the mimetic system may enable us to achieve an accurate reconstruction of Old Japanese where documents are minimum. It also suggests the need to look at documents in a new light. It seems that, once treated properly, the system of Japanese mimetic words rewards the researcher with a different perspective for looking at the history of Japanese.

APPENDIX A MONOSYLLABIC MIMETIC ADVERBS

This is a summary of N-ending and Q-ending monosyllabic mimetic adverbs. Those containing palatalization are excluded. Variations such as CVN, CVVN, CV-CVN, CVN-CVN, etc. are treated as a single adverb. Likewise, CVQ, CVVQ, CV-CVQ, CVQ-CV, etc. are treated as one adverb. Note that some cases of /zi, zu/ are listed both as /zi, zu/ and /di, du/ because they seem to derive from /di, du/. However, for the computation of occurrences of sound units in §2.2.2.2.1, they are counted only once.

The criteria for listing a form in this list are (1) that either it has at least two mimetic variations involving lengthening, reduplication, et., or it is systematically related to other unambiguously mimetic words, and (2) that it can be accompanied by the characteristic mimetic prosodic pattern of terminal pitch fall, as described in §3.1. For this reason, /meQ"/, a vocal segregate for reprimand, for instance, is excluded from the list, although it resembles mimetic adverbs.

/p-/	piN piQ	-- peQ	paN paQ	poN poQ	puN puQ
/b-/	biN biQ	-- beQ	baN baQ	boN boQ	buN buQ
/h-/	hiN hiQ	-- heQ	-- haQ	-- hoQ	huN huQ
/t-/	tiN tiQ	-- --	-- taQ	toN toQ	tuN tuQ
/d-/	-- --	deN --	daN daQ	doN doQ	(duN) (duQ)

/s-/	siN	--	--	--	--
	siQ	seQ	saQ	soQ	suQ
/z-/	ziN	--	--	--	zuN
	ziQ	--	zaQ	zoQ	zuQ
/k-/	kiN	--	kaN	koN	kuN
	kiQ	keQ	kaQ	koQ	kuQ
/g-/	--	--	gaN	goN	guN
	giQ	geQ	gaQ	goQ	guQ
/w-/	--	weN	waN	woN	--
	wiQ	weQ	waQ	woQ	--
/Ø-/	--	eN	aN	oN	uN
	--	eQ	aQ	oQ	uQ
/r-/	riN	--	--	--	--
	--	--	--	--	--
/m-/	miN	--	--	--	muN
	--	--	--	--	muQ
/n-/	niQ	--	--	--	nuQ
	--	--	--	--	--

APPENDIX B REDUPLICATIVE BISYLLABIC MIMETIC ADVERBS

The following is the list of reduplicative bisyllabic mimetic adverbs used for the computation in §2.2.2.2.2. The forms are listed according to the combinations of (1) consonants and (2) vowels. Under each consonantal combination such as /p-t-/, the forms are ordered according to the following organization of vowels.

-i-i	-e-i	-a-i	-o-i	-u-i
-i-e	-e-e	-a-e	-o-e	-u-e
-i-a	-e-a	-a-a	-o-a	-u-a
-i-o	-e-o	-a-o	-o-o	-u-o
-i-u	-e-u	-a-u	-o-u	-u-u

The sequences /zi, zu/ are double-listed under /zi, zu/ and /di, du/, because some of /zi, zu/ are suspected to derive from underlying /di, du/. However, for the computation, they are counted only once as /zi, zu/. Likewise, some cases of medial /b/ are double-listed under medial /p/, because they are considered to derive from underlying /p/. However, for the sake of the discussion in §2.2.2.2.2, they are counted only once as /b/. Initial /w/ and /Ø/ are coalesced in one section, because they do not contrast in that position. The forms with question marks are sound-symbolically marginal either in that they do not conform to the accentual pattern of bisyllabic mimetic adverbs or in that their historical derivations from the ordinary stratum are known. However, since they are considered mimetic by Asano (1978), they are included in the computation.

/p-w-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	puwa-puwa
--	--	--	--	--
--	--	--	--	--

/p-t-/

piti-piti	--	pati-pati	poti-poti	puti-puti
--	--	--	pote-pote	--
pita-pita	peta-peta	pata-pata	pota-pota	--
--	peto-peto	--	poyo-poto	--
--	--	--	potu-potu	putu-putu

/p-s-/

pisi-pisi	--	pasi-pasi	--	--
--	--	--	--	--
--	--	pasa-pasa	--	--
--	--	--	poso-poso	--
--	--	--	--	pusu-pusu

/p-r-/

piri-piri	--	pari-pari	pori-pori	puri-puri
--	--	--	--	--
pira-pira	pera-pera	para-para	--	pura-pura
--	poro-pero	--	poro-poro	--
--	--	--	--	puru-puru

/p-y-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
piyo-piyo	--	--	--	--
--	--	--	--	--

/p-k-/

--	--	paki-paki	poki-poki	--
--	--	--	--	--
pika-pika	peka-peka	paka-paka	poka-poka	puka-puka
--	peko-peko	--	poko-poko	--
piku-piku	--	paku-paku	poku-poku	puku-puku

/b-w-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	buwa-buwa
--	--	--	--	--
--	--	--	--	--

/b-t-/

biti-biti	--	bati-bati	boti-boti	--
--	--	--	bote-bote	--
--	beta-beta	bata-bata	bota-bota	--
--	beto-beto	--	boto-boto	--
--	--	--	botu-botu	butu-butu

/b-s-/

bisi-bisi	--	basi-basi	--	--
--	--	--	--	--
--	--	basa-basa	--	--
--	--	--	boso-boso	--
--	--	--	--	busu-busu

/b-r-/

biri-biri	beri-beri	bari-bari	bori-bori	buri-buri
--	--	--	--	--
bira-bira	bera-bera	bara-bara	--	bura-bura
--	bero-bero	--	boro-boro	--
--	--	--	--	buru-buru

/b-y-/

--	--	--	--	--
--	--	--	--	--
--	--	--	boya-boya	--
--	--	--	--	buyo-buyo
--	--	--	--	--

/b-k-/

--	--	--	boki-boki	--
--	--	--	--	--
--	--	baka-baka	boka-boka	buka-buka
--	beko-beko	--	boko-boko	--
biku-biku	--	--	--	buku-buku

/h-w-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	huwa-huwa
--	--	--	--	--
--	--	--	--	--

/h-t-/

--	--	--	--	--
--	--	--	--	hita-hita
heta-heta	hata-hata	--	--	--
--	--	--	--	--
--	--	--	hotu-hotu	hutu-hutu

/h-s-/

hisi-hisi	--	--	--	--
--	--	--	--	--
--	--	--	--	husa-husa?
hiso-hiso	--	--	--	--
--	--	--	--	husu-husu

/h-r-/

hiri-hiri	--	--	--	--
--	--	--	--	--
hira-hira	hera-hera	hara-hara	--	hura-hura
--	--	--	horo-horo	--
--	--	--	--	--

/h-y-/

--	--	--	--	--
--	--	--	--	--
hiya-hiya?	--	--	hoya-hoya	--
hiyo-hiyo	--	--	--	--
--	--	--	--	--

/h-n-/

--	--	--	--	--
--	--	--	--	--
--	hena-hena	--	--	--
--	--	--	--	--
--	--	--	--	--

/h-k-/

--	--	haki-haki	--	--
--	--	--	--	--
--	--	--	hoka-hoka	--
--	--	--	--	--
hiku-hiku	--	--	hoku-hoku	--

/h-g-/

--	--	--	--	--
--	--	--	--	--
--	--	--	huga-huga	--
--	--	--	--	--
--	--	--	--	--

/(w)-h-/

--	--	--	--	--
--	--	--	--	--
--	--	--	uha-uha	--
--	--	--	--	--
--	--	--	--	--

/(w)-t-/

--	--	--	oti-oti	--
--	--	--	--	--
--	--	--	ota-ota	--
--	--	--	--	uto-uto
--	--	--	--	--

/ (w) -d -/				(idi-idi)
--	--	(odi-odi)	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	odo-odo	--
--	--	--	(odu-odu)	--
/ (w) -s -/				usi-usi
--	--	--	--	--
--	--	--	--	--
--	--	was-a-wasa	--	--
iso-iso	--	--	--	--
--	--	--	--	--
/ (w) -z -/				izi-izi
--	--	ozi-ozi	uzi-uzi	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	ozu-ozu	uzu-uzu
/ (w) -r -/				--
--	--	--	--	--
--	--	--	--	ira-ira
--	--	--	ura-ura	--
--	--	--	oro-oro	uro-uro
--	--	--	--	--
/ (w) -y -/				--
--	--	--	--	--
--	--	--	--	--
--	waya-way-a	--	--	--
--	--	--	uyo-uyo	--
--	--	--	--	--
/ (w) -n -/				--
--	--	--	--	--
--	--	--	--	une-une?
--	--	wana-wana	--	--
--	--	--	--	--
--	--	--	--	--
/ (w) -k -/				uki-uki
--	--	--	--	--
--	--	--	--	uka-uka
--	--	--	--	--
--	--	--	--	--
--	--	waku-waku	--	--

/m-t-/				
--	--	--	--	muti-muti
--	--	--	--	--
--	--	--	mota-mota	--
--	--	--	--	--
--	--	--	--	--
/m-s-/				
misì-misì	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	meso-meso	--	moso-moso	--
--	--	--	--	--
/m-z-/				
--	mazi-mazi	mozi-mozi	--	--
--	--	--	--	--
--	--	maza-maza?	--	--
--	--	--	mozo-mozo	--
--	--	--	--	muzu-muzu
/m-r-/				
miri-miri	meri-meri	--	mori-mori	--
--	--	--	--	--
--	--	--	--	mura-mura
--	--	--	--	--
--	--	--	--	--
/m-y-/				
--	--	--	--	--
--	--	--	--	--
--	--	--	moya-moya	--
--	--	--	--	--
--	--	--	--	--
/m-k-/				
--	meki-meki	--	--	--
--	--	--	--	--
--	--	--	--	muka-muka
--	--	--	moko-moko	--
--	--	--	moku-moku	muku-muku
/m-g-/				
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	mago-mago	mogo-mogo	--
--	--	--	mogu-mogu	--

/t-p-/	(tibi-tibi)	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
/t-b-/	tibi-tibi	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	tobo-tobo	--
	--	--	--	--	--
/t-m-/	--	--	--	--	--
	--	--	--	--	--
	tima-tima	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
/t-d-/	--	(tazi-tazi)	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	tado-tado	--	--	--
	--	--	--	--	--
/t-z-/	--	tazi-tazi	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
/t-r-/	--	--	--	--	tiri-tiri
	--	--	--	--	--
	tira-tirsa	tera-tera	tara-tara	--	tura-tura
	tiro-tiro	--	--	toro-toro	--
	--	--	--	--	turu-turu
/t-y-/	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	tuya-tuya?
	--	--	--	--	--
	--	--	--	--	--

/t-k-/

--	--	--	--	--
--	--	--	--	tuke-tuke
tika-tika	teka-teka	taka-taka	--	tuka-tuka
--	--	--	toko-toko	--
tiku-tiku	teku-teku	--	toku-toku	tuku-tuku

/t-g-/

--	--	--	--	--
--	--	--	toge-toge?	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/d-p-/

--	--	--	--	--
--	--	--	--	--
--	--	(daba-daba)	--	--
--	--	(dabo-dabo)	(dobo-dobo)	--
--	(debu-debu)	(dabu-dabu)	(dobu-dobu)	--

/d-b-/

--	--	--	--	--
--	--	--	--	--
--	--	daba-daba	--	--
--	--	dabo-dabo	dobo-dobo	--
--	debu-debu	dabu-dabu	dobu-dobu	--

/d-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	dota-dota	--
--	--	--	--	--
--	--	--	--	--

/d-s-/

--	--	--	dosi-dosi	--
--	--	--	--	--
--	--	--	dosa-dosa	--
--	--	--	--	--
--	--	--	--	--

/d-r-/

(diri-diri)	--	--	--	--
--	dere-dere	--	--	--
--	--	dara-dara	--	--
(diro-diro)	--	--	doro-doro	--
--	--	--	--	--

/d-y-/

--	--	--	--	--
--	--	--	--	--
--	--	--	doya-doya	--
--	--	--	--	--
--	--	--	--	--

/d-k-/

--	--	--	doki-doki	(duki-duki)
--	--	--	--	(duke-duke)
--	deka-deka	--	doka-doka	(duka-duka)
--	deko-deko	--	--	--
--	--	daku-daku	doku-doku	--

/s-p-/

--	--	--	--	--
--	--	--	--	--
sipa-sipa	--	(saba-saba)	--	supa-supu
--	--	--	--	supo-supu
--	--	--	--	--

/s-b-/

--	--	--	--	--
--	--	--	--	sube-sube
--	--	saba-saba	--	--
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/s-w-/

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--	--	--	--	--
--	--	--	sowa-sowa	--
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/s-t-/

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--	--	--	suta-suta	--
sito-sito	--	--	--	--
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/s-r-/

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--	--	sara-sara	--	sura-sura
--	--	--	soro-soro	--
--	--	--	--	suru-suru

/s-y-/

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--	--	--	--	--
--	--	saya-saya	--	suya-suya
--	--	--	soyo-soyo	--
--	--	--	--	--

/s-n-/

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--	--	--	--	--
sina-sina	--	--	--	--
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/s-k-/

--	--	--	--	--
--	--	--	--	--
--	seka-seka	--	--	suka-suka
siko-siko	--	--	--	--
siku-siku	--	saku-saku	--	suku-suku

/s-g-/

--	--	--	--	--
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--	--	--	--	sugo-sugo
--	--	--	--	--

/z-p-/

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--	--	--	--	--
--	--	--	--	(zuba-zuba)
--	--	--	--	(zubo-zubo)
--	--	--	--	(zubu-zubu)

/z-b-/

--	--	--	--	--
--	--	--	--	--
--	--	zaba-zaba	--	zuba-zuba
--	--	--	--	--
--	--	zabu-zabu	--	zubu-zubu

/z-w-/

--	--	--	--	--
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ziwa-ziwa	--	zawa-zawa	--	--
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/z-m-/

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zime-zime	--	--	--	--
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/z-t-/

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zito-zito	--	--	--	--
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/z-r-/

ziri-ziri	--	--	zori-zori	--
--	--	--	--	--
--	--	zara-zara	--	zura-zura
ziro-ziro	--	--	zoro-zoro	--
--	--	--	--	zuru-zuru

/z-k-/

--	--	--	--	zuki-zuki
--	--	--	--	zuke-zuke
--	--	--	--	zuka-zuka
--	--	--	--	--
ziku-ziku	--	zaku-zaku	zoku-zoku	--

/y-b-/

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--	--	--	yobo-yobo	--
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/y-t-/

--	--	--	yoti-yoti	--
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--	--	--	yota-yota	--
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/y-s-/

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--	--	--	--	yusa-yusa
--	--	--	--	--
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/y-r-/

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--	--	--	--	--
--	--	--	--	yura-yura
--	--	--	yoro-yoro	--
--	--	--	--	--

/n-b-/

--	--	--	nobi-nobi?	--
--	--	--	--	--
--	neba-neba	--	--	--
--	--	--	--	--
--	--	--	--	--

/n-m-/

--	--	nami-nami?	--	--
--	--	--	--	nume-nume
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/n-t-/

--	neti-neti	--	--	--
--	--	--	--	--
nita-nita	neta-neta	--	--	--
--	neto-neto	--	--	--
--	--	--	--	--

/n-s-/

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--	--	--	--	--
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--	--	--	noso-noso	--
--	--	--	--	--

/n-r-/

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--	--	--	--	--
--	--	--	noro-noro	--
--	--	--	--	nuru-nuru

/n-y-/

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--	--	--	--	--
niya-niya	--	--	--	--
--	--	nayo-nayo	--	--
--	--	--	--	--

/n-k-/

--	--	--	--	--
--	--	--	--	nuke-nuke
--	--	--	--	--
niko-niko	--	--	noko-noko	--
--	--	--	--	nuku-nuku

/k-b-/

kibi-kibi	--	--	--	--
--	--	--	--	--
--	keba-keba	--	--	--
--	--	--	--	--
--	--	--	--	--

/k-t-/

kiti-kiti	keti-keti	kati-kati	koti-koti	--
--	--	--	kote-kote	--
--	keta-keta	kata-kata	--	kuta-kuta
--	--	--	koto-koto	--
--	--	katu-katu	kotu-kotu	kutu-kutu

/k-d-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	kuda-kuda
--	--	--	--	kudo-kudo
--	--	--	--	--

/k-s-/

kisi-kisi	--	--	--	--
--	--	--	kose-kose	--
--	--	kasa-kasa	--	--
--	--	--	koso-koso	--
--	--	--	--	kusu-kusu

/k-r-/

kiri-kiri	--	kari-kari	kori-kori	kuri-kuri
--	--	--	--	--
kira-kira	kera-kera	kara-kara	--	kura-kura
--	kero-kero	--	koro-koro	--
--	--	--	--	kuru-kuru

/k-y-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	kuyo-kuyo
--	--	--	--	--

/k-n-/

--	--	--	--	--
--	--	--	--	kune-kune
--	--	--	--	--
--	--	--	--	--
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/g-p-/

--	--	--	--	--
--	--	--	--	--
--	--	(gaba-gaba)	--	--
--	(gebo-gebo)	(gabo-gabo)	(gobo-gobo)	--
--	(gebu-gebu)	(gabu-gabu)	--	--

/g-b-/

--	--	--	--	--
--	--	--	--	--
--	--	gaba-gaba	--	--
--	gebo-gebo	gabo-gabo	gobo-gobo	--
--	gebu-gebu	gabu-gabu	--	--

/g-w-/

--	--	--	--	--
--	--	--	--	--
--	--	--	gowa-gowa	--
--	--	--	--	--
--	--	--	--	--

/g-m-/

--	--	gami-gami	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/g-t-/

giti-giti	--	gati-gati	goti-goti	--
--	--	--	gote-gote	--
--	geta-geta	gata-gata	gota-gota	guta-guta
gito-gito	--	--	goto-goto	--
--	--	gatu-gatu	gotu-gotu	gutu-gutu

/g-d-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	(gudu-gudu)

/g-s-/

gisi-gisi	--	--	gosi-gosi	--
--	--	--	--	--
--	--	gasa-gasa	--	gusa-gusa
--	--	--	goso-goso	--
gisu-gisu	--	--	--	gusu-gusu

/g-z-/

--	--	--	--	--
--	--	--	--	--
giza-giza	--	--	--	--
--	--	--	--	--
--	--	--	--	guzu-guzu

/g-r-/

giri-giri	--	gari-gari	gori-gori	guri-guri
--	--	--	--	--
gira-gira	gera-gera	gara-gara	--	gura-gura
--	gero-gero	--	goro-goro	--
--	--	--	--	guru-guru

/g-y-/

--	--	--	--	--
--	--	--	--	--
--	--	gaya-gaya	--	--
--	--	--	--	--
--	--	--	--	--

/g-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
giko-giko	--	--	--	--
giku-giku	geku-geku	gaku-gaku	goku-goku	--

APPENDIX C
MIMETIC ADVERBS /CV(N)CVri/ AND /CV(Q)CVri/

The following is the list of mimetic adverbs in the form of /CV(N)CVri/ or /CV(Q)CVri/ used for the computation in §2.2.2.2. The forms are listed in the same manner as reduplicative bisyllabic mimetic adverbs in Appendix B.

/p-t-/

piQtiri	--	pa(Q)tiri	poQtiri	--
--	--	--	poQteri	--
pi(Q)tari	pe(Q)tari	pa(Q)tari	potari	--
--	--	--	potori	--
--	--	--	po(Q)turi	pu(Q)turi

/p-s-/

pisiri	--	--	--	--
--	--	--	--	--
--	--	pasari	--	--
--	--	--	--	--
--	--	--	--	--

/p-r-/

piriri	--	--	--	--
--	--	--	--	--
pirari	perari	parari	--	purari
--	porori	--	porori	--
--	--	--	--	--

/p-k-/

--	--	--	po(Q)kiri	--
--	--	--	--	--
pikari	--	paka-paka	po(Q)kari	pukari
--	--	--	poQkori	--
pikuri	--	pa(Q)kuri	po(Q)kuri	puQkuri

/b-t-/

biQtiri	--	baQtiri	--	--
--	--	--	boQteri	--
--	be(Q)tari	ba(Q)tari	--	--
--	beQtori	--	--	--
--	--	--	--	--

/b-s-/

biQsiri	--	--	--	--
--	--	--	--	--
--	--	ba(Q)sari	--	--
--	--	--	bosori	--
--	--	--	--	--

/b-r-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	burari
--	--	--	--	--
--	--	--	--	--

/b-y-/

--	--	--	--	--
--	--	--	--	--
--	--	--	boNyari	--
--	--	--	--	--
--	--	--	--	--

/b-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	bo(Q)kari	--
--	--	--	boQkori	--
biQkuri	--	bakuri	--	--

/h-w-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	hu(N)wari
--	--	--	--	--
--	--	--	--	--

/h-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	huQturi

/h-s-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	huQsari
hiQsori	--	--	--	--
--	--	--	--	--

/h-r-/

hiriri	--	--	--	--
--	--	--	--	--
hirari	--	--	--	hurari
--	--	--	--	--
--	--	--	--	--

/h-y-/

--	--	--	--	--
--	--	--	--	--
hiNyari	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/h-k-/

--	--	ha(Q)kiri	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	hoQkuri	--

/(w)-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	uQtori
--	--	--	--	--

/(w)-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	uQkari
--	--	--	--	--
--	--	--	--	--

/m-t-/

--	--	--	--	muQtiri
--	--	--	--	--
--	--	--	moQtari	--
--	--	--	--	--
--	--	--	--	--

/m-s-/

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--	--	--	--	--
--	--	--	--	--
--	--	--	moQsori	--
--	--	--	--	--

/m-z-/

--	--	maNziri	--	--
--	--	--	--	--
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--	--	--	--	--
--	--	--	--	--

/m-k-/

--	meQkiri	--	--	--
--	--	--	--	--
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--	--	--	--	--
--	--	--	--	muQkuri

/t-p-/

(tibiri)	--	--	--	--
--	--	--	--	--
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--	--	--	--	--
--	--	taQpuri	toQpuri	--

/t-m-/

--	--	--	--	--
--	--	--	--	--
tiNmari	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/t-r-/

--	--	--	--	--
--	--	--	--	--
tirari	--	tarari	--	--
--	--	--	torori	--
--	--	--	--	tururi

/t-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
tikuri	--	--	--	--

/d-p-/

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--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	deQpuri	--	doQpuri	--

/d-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	dotari	--
--	--	--	--	--
--	--	--	--	--

/d-s-/

--	--	--	doQsiri	--
--	--	--	--	--
--	--	--	doQsari	--
--	--	--	--	--
--	--	--	--	--

/d-r-/

--	--	--	--	--
--	--	--	--	--
--	--	darari	--	--
(dirori)	--	--	dorori	--
--	--	--	--	--

/d-y-/

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--	--	--	--	--
--	--	--	doNyor	--
--	--	--	--	--

/d-k-/

--	--	--	doQkiri	--
--	--	--	--	--
--	--	--	do(Q)kari	--
--	--	--	--	--
--	--	--	--	--

/s-p-/

--	--	--	--	--
--	--	--	--	--
--	--	saQpari	--	suQpari
--	--	--	--	suQpori
--	--	--	--	--

/s-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
siQtori	--	--	--	--
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/s-r-/

--	--	--	--	--
--	--	--	--	--
--	--	sarari	--	surari
--	--	--	sorori	--
--	--	--	--	sururi

/s-n-/

--	--	--	--	--
--	--	--	--	--
siNnari	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/s-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	suQkari
--	--	--	--	--
siQkuri	--	saQkuri	--	--

/z-p-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	zuQpari
--	--	--	--	zuQpori
--	--	--	--	--

/z-b-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	zaNburi	--	--

/z-w-/

--	--	--	--	--
--	--	--	--	--
ziwari	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/z-t-/

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--	--	--	--	--
ziQtori	--	--	--	--
--	--	--	--	--

/z-s-/

--	--	--	--	zu(Q)siri
--	--	--	--	--
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--	--	--	--	--

/z-r-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	zurari
zirori	--	--	--	--
--	--	--	--	--

/z-k-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
ziQkuri	--	--	--	--

/y-t-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	yuQtari
--	--	--	--	--
--	--	--	--	--

/y-r-/

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--	--	--	--	--
--	--	--	--	yurari
--	--	--	--	--
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/y-k-/

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--	--	--	--	yuQkuri

/n-b-/

--	--	--	noNbiri	--
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/n-m-/

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niNmari	--	--	--	--
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--	--	--	--	--

/n-t-/

--	neQtiri	--	--	--
--	--	--	--	--
nitari	--	--	--	--
--	neQtori	--	--	--
--	--	--	--	--

/n-s-/

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--	--	--	noQsori	--
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/n-r-/

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--	--	--	--	--
--	--	--	--	--
--	--	--	norori	--
--	--	--	--	nururi

/n-y-/

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--	--	--	--	--
niyari	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/n-k-/

--	--	--	--	--
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ni(Q)kori	--	--	--	--
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/k-p-/

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--	--	--	--	--
kiQpari	--	--	--	--
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--	--	--	--	--

/k-t-/

kiQtiri	--	ka(Q)tiri	--	--
--	--	--	koQteri	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

/k-s-/

--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	koQsori	--
--	--	--	--	kusuri

/k-r-/

kiriri	--	kariri	--	--
kirari	--	karari	--	kurari
--	kerori	--	korori	--
--	--	--	--	kururi
--	--	--	--	--

/k-k-/

--	--	kaQkiri	koQkiri	kuQkiri
--	--	--	--	--
kiQkari	--	--	--	--
--	--	--	--	--
--	--	--	koQkuri	--

/g-p-/

--	--	--	--	--
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--	--	--	--	--
--	--	gaQpori	--	--
--	--	(gaburi)	--	--

/g-t-/

giQtiri	--	gaQtiri	--	--
--	--	--	goQteri	--
--	--	gatari	--	guQtari
--	--	--	gotori	--
--	--	--	--	--

/g-s-/

giQsiri	--	--	--	--
--	--	--	--	--
--	--	--	--	gusari
--	--	--	goQsori	--
--	--	--	--	guQsuri

/g-r-/

--	--	--	--	--
--	--	--	--	--
--	--	garari	--	gurari
--	--	--	gorori	--
--	--	--	--	gururi

/g-n-/

--	--	--	--	--
--	--	--	--	--
--	geNnari	--	--	--
--	--	--	--	--
--	--	--	--	--

/g-k-/

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--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
giQkuri	--	gaQkuri	--	--

APPENDIX D
TEST SENTENCE PAIRS FOR §3.3

1. Okyaku ga de-ta to omoQ-tara Yasue-saN tara sio o paQto/paaQ to doa no hoo e nage-tuke-ta no.
2. DoN to/dooN to toozyoo.
3. PiN to/piiN to harare-ta hari-gane ni zaimoku o sibari-tuke-te sita ni oros-u no des-u.
4. Gitaa no ito o piN to/piiN to hazii-ta.
5. Koosui ga puN to/puuN to nioQ-ta.
6. Iro ga paQ to/paaQ to kawaQ-ta.
7. PiN to/piiN to hiQ-paQ-te kudasai.
8. ENdaN o poN to/pooN to kotowaQ-ta N daQ-te.
9. Tanuki no onaka ga paN to/paaN to haretu si-te simaQ-ta no des-u.
10. Reizoo-ko o ake-tara sakana no nioi ga puN to/puuN to si-ta.
11. Tukusi wa neQtoo ni sake syoosyoo o tarasi-ta naka de yude-ru to paQ to/paaQ o iro ga utukusiku nari-mas-u.
12. OtoosaN no akutai ni puQ to/puuQ to hukure-ta.
13. KaasaN-gitune wa sono te ni haQ to/haaQ to iki o huki-kake-te yari-masi-ta.
14. KaN to/kaaN to kane ga nari-masi-ta.
15. PaQ to/paaQ to akaku nari-masi-ta.
16. Omoti ga puQ to/puuQ to hukure-ta.
17. Hako o ake-tara tuN to/tuuN to kabi-kusai nioi ga si-ta.
18. Wasabi ga hana ni tuN to/tuuN to ki-ta.
19. Uki ga suQ to/suuQ to hasiQ-ta.

20. BaN to/baaN to i-u bakuhatu-on.
21. GyuQ to/gyuuQ to te o nigiri-sime-ta.
22. Tui kaQ to/kaaQ to si-te simaQ-ta.

APPENDIX E BISYLLABIC MIMETIC ADVERBS WITH PALATALIZATION

The following is the list of reduplicative bisyllabic mimetic adverbs with palatalization that is used for the computation in §6.1.1. The forms are listed in the same way as APPENDIX B.

/p-t-/

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--	--	--	--	--
pitya-pitya	petya-petya	patya-patya	potya-potya	--
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/p-s-/

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--	--	--	--	--
pisya-pisya	pesya-pesya	pasya-pasya	posya-posya	--
--	--	--	--	--
--	--	--	--	pusyu-pusyu

/p-k-/

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--	--	--	--	--
--	--	--	--	--
--	--	--	pyoko-pyoko	--
--	--	--	--	--

/b-t-/

--	--	--	--	--
--	--	--	--	--
bitya-bitya	betya-betya	batya-batya	botya-botya	--
--	betyo-betyo	--	--	--
--	--	--	--	--

/b-s-/

--	--	--	--	--
--	--	--	--	--
bisya-bisya	besya-besya	basya-basya	bosya-bosya	--
bisyo-bisyo	--	--	--	--
--	--	--	--	--

/h-r-/

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--	--	--	--	--
--	--	--	hyoro-hyoro	--
--	--	--	--	hyuru-hyuru

/h-k-/

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--	--	--	hyoko-hyoko	--
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/h-n-/

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--	--	--	--	hunya-hunya
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/t-r-/

--	--	tyari-tyari	--	--
--	--	--	--	--
--	--	tyara-tyara	--	--
--	--	--	tyoro-tyoro	--
--	--	--	--	tyuru-tyuru

/t-p-/

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--	--	--	--	--
--	--	--	--	--
--	--	tyapo-tyapo	(tyobo-tyobo)	--
--	--	--	--	--

/t-b-/

--	--	--	tyobi-tyobi	--
--	--	--	--	--
--	--	--	--	--
--	--	--	tyobo-tyobo	--
--	--	--	--	--

/t-k-/

--	--	tyaki-tyaki	tyoki-tyoki	--
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--	--	tyaka-tyaka	--	--
--	--	--	tyoko-tyoko	--
--	--	--	tyoku-tyoku	tyuku-tyuku

/d-s/

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--	--	--	dosya-dosya	--
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/k-r-/

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--	--	--	kyoro-kyoro	--
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/k-t-/

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--	--	--	--	--
--	--	katya-katya	--	kutya-kutya
--	--	--	kyoto-kyoto/kotyo-kotyo	--
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/k-s-/

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--	--	--	--	--
--	--	kasya-kasya	--	kusya-kusya
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/k-n-/

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--	--	--	--	kunya-kunya
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/g-r-/

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--	--	--	--	--
--	--	--	gyoro-gyoro	--
--	--	--	--	--

/g-t-/

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--	--	--	--	--
--	--	gatyа-gatyа	gotya-gotya	gutya-gutya
--	--	--	gotyo-gotyo	--
--	--	--	--	--

/g-s-/

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--	--	--	--	--
--	--	gasya-gasya	gosya-gosya	gusya-gusya
--	--	--	--	gusyo-gusyo
--	--	--	--	--

/g-n-/

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--	--	--	--	--
--	--	--	--	gunya-gunya
--	--	--	gonyo-gonyo	--
--	--	--	--	--

/s-r-/

--	--	syari-syari	--	--
--	--	--	--	--
--	--	syara-syara	--	-
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--	--	--	--	syuru-syuru

/s-b-/

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--	--	--	--	--
--	--	--	syobo-syobo	--
--	--	syabu-syabu	--	--

/s-k-/

--	--	syaki-syaki	syoki-syoki	--
--	--	--	--	--
--	--	syaka-syaka	--	--
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/z-r-/

--	--	zyari-zyari	zyori-zyori	--
--	--	--	--	--
--	--	zyara-zyara	--	--
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/z-b-/

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--	--	zyabu-zyabu	--	--

/z-k-/

--	--	--	zyoki-zyoki	--
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--	--	zyaka-zyaka	--	--
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--	--	--	--	zyuku-zyuku

/m-s-/

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--	--	--	mosya-mosya	musya-musya
--	--	--	mosyo-mosyo	--
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/m-z-/

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--	--	--	mozya-mozya	--
--	--	--	mozyo-mozyo	--
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/m-n-/

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--	--	--	--	munya-munya
--	--	--	monyo-monyo	--
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/n-r-/

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--	--	--	--	--
--	--	--	nyoro-nyoro	--
--	--	--	--	nyuru-nyuru

/n-t-/

--	--	--	--	--
--	--	--	--	--
nitya-nitya	netya-netya	--	--	--
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/n-k-/

--	--	--	nyoki-nyoki	--
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/w-t-/

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itya-itya	--	--	--	--
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/w-z-/

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--	--	--	--	uzya-uzya
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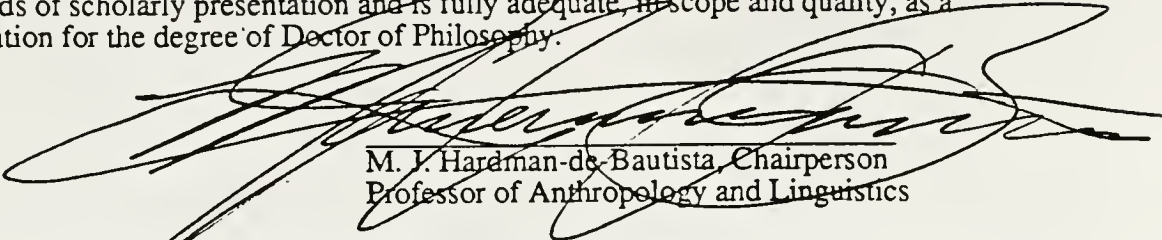
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BIOGRAPHICAL SKETCH

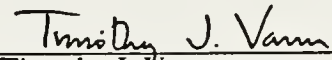
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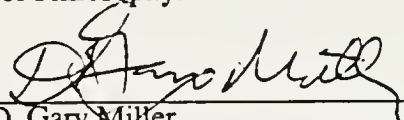
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Professor of Anthropology and Linguistics

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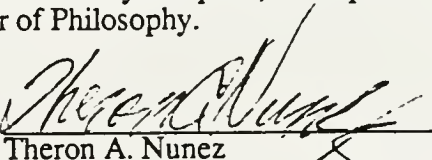
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May 1986

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